

**SONY**<sup>®</sup>

TRINITRON<sup>®</sup> COLOR VIDEO MONITOR

**PVM-9L1**

CHASSIS NO. SCC-M04H-A

SERVICE MANUAL  
1st Edition

## **⚠ 警告**

このマニュアルは、サービス専用です。  
お客様が、このマニュアルに記載された設置や保守、点検、修理などを行うと感電や火災、人身事故につながる可能性があります。  
危険をさけるため、サービストレーニングを受けた技術者のみご使用ください。

## **⚠ WARNING**

This manual is intended for qualified service personnel only.  
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

## **⚠ WARNUNG**

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.  
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

## **⚠ AVERTISSEMENT**

Ce manuel est destiné uniquement aux personnes compétentes en charge de l'entretien. Afin de réduire les risques de décharge électrique, d'incendie ou de blessure n'effectuer que les réparations indiquées dans le mode d'emploi à moins d'être qualifié pour en effectuer d'autres. Pour toute réparation faire appel à une personne compétente uniquement.

### **WARNING!!**

**AN INSULATED TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS. THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.**

### **SAFETY-RELATED COMPONENT WARNING !!**

**COMPONENTS IDENTIFIED BY A  $\Delta$  MARK ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.**

### **ATTENTION!!**

**AFIN D'ÉVITER TOUT RISQUE D'ÉLECTROCUTION PROVENANT D'UN CHÂSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ÊTRE UTILISÉ LORS DE TOUT DÉPANNAGE. LE CHÂSSIS DE CE RÉCEPTEUR EST DIRECTEMENT RACCORDÉ À L'ALIMENTATION SECTEUR.**

### **ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!**

**LES COMPOSANTS IDENTIFIÉS PAR UNE MAPQUE  $\Delta$  SUR LES SCHÉMAS DE PRINCIPE, LES VUES EXPLOSÉES ET LES LISTES DE PIÈCES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÈCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR SONY. LES RÉGLAGES DE CIRCUIT DONT L'IMPORTANCE EST CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT SONT IDENTIFIÉS DANS LE PRÉSENT MANUEL. SUIVRE CES PROCÉDURES LORS DE CHAQUE REMPLACEMENT DE COMPOSANTS CRITIQUES, OU LORSQU'UN MAUVAIS FONCTIONNEMENT EST SUSPECTÉ.**

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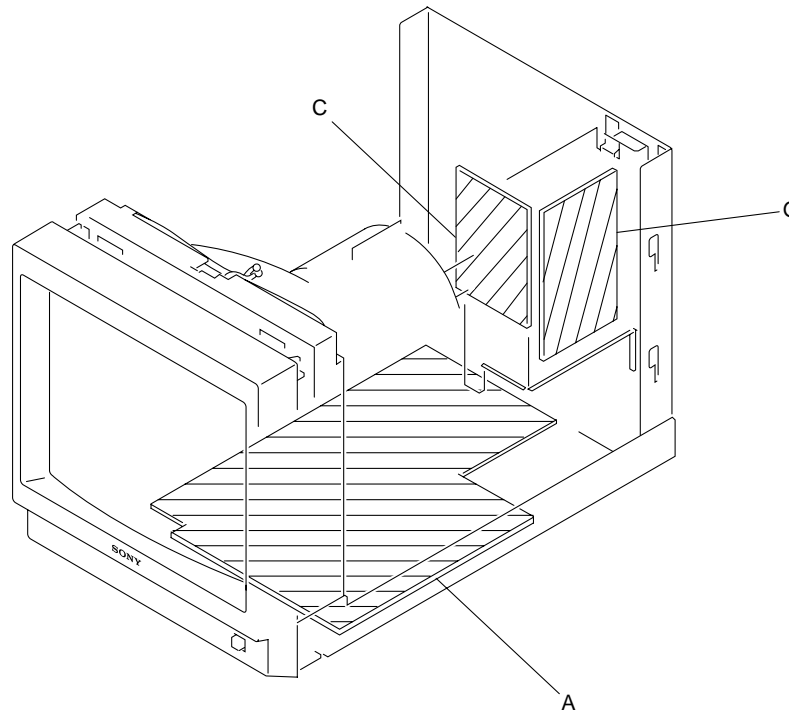
# Section 1

## Service Overview

### 1-1. Appearance Figure

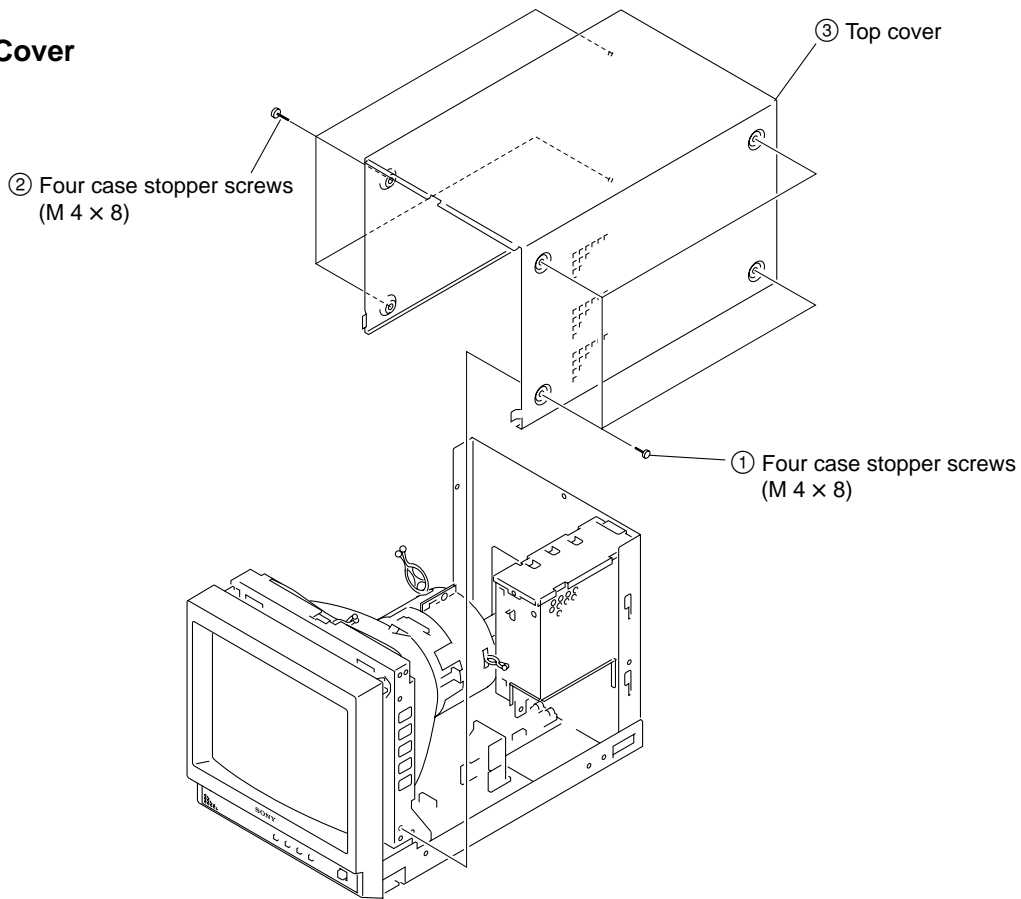


### 1-2. Board Locations



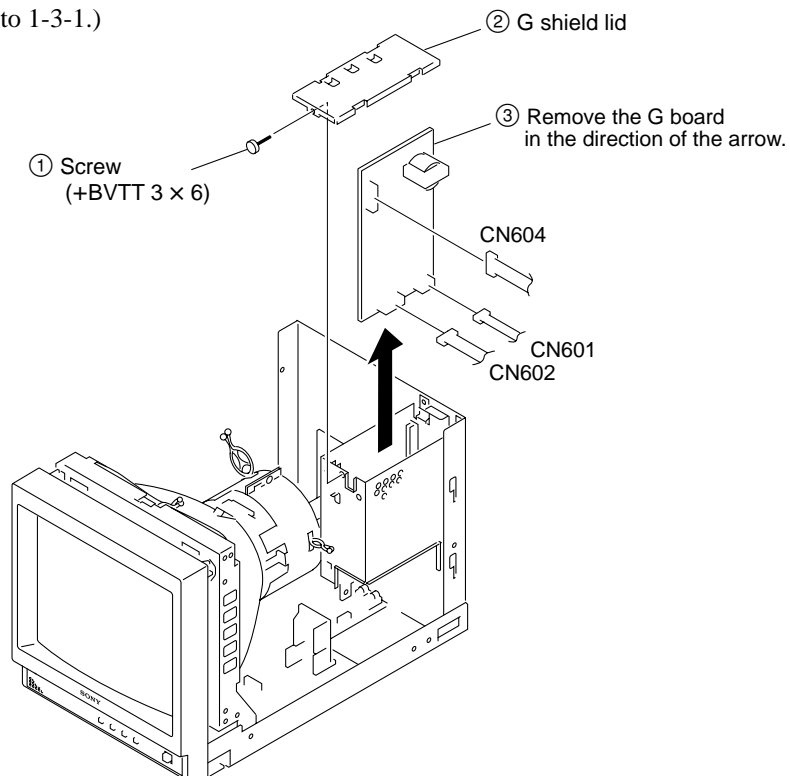
## 1-3. Disassembly

### 1-3-1. Top Cover



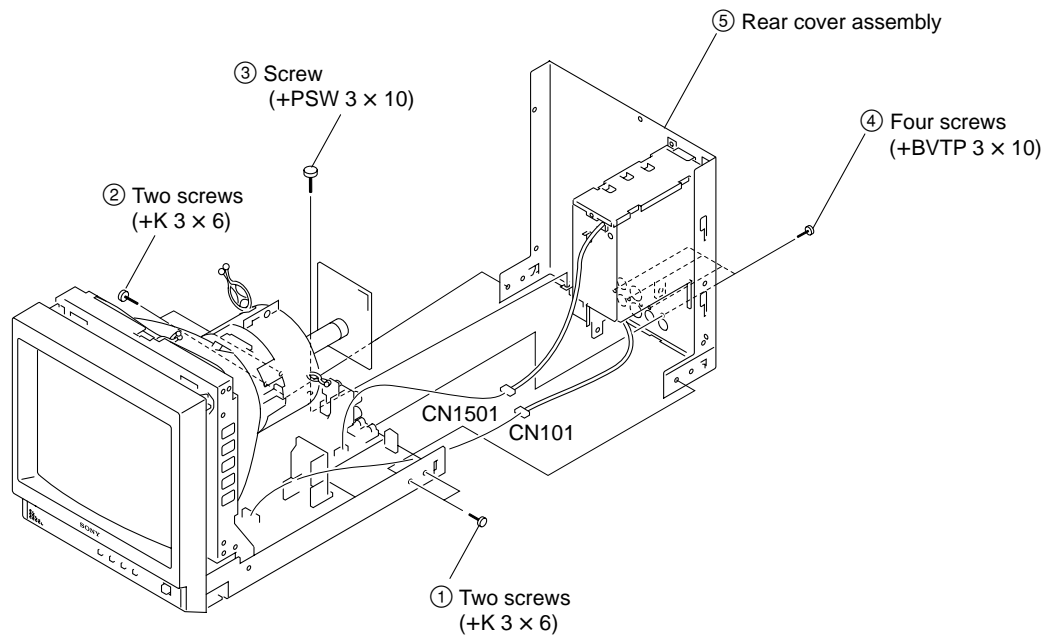
### 1-3-2. G Board

- Remove the top cover. (Refer to 1-3-1.)



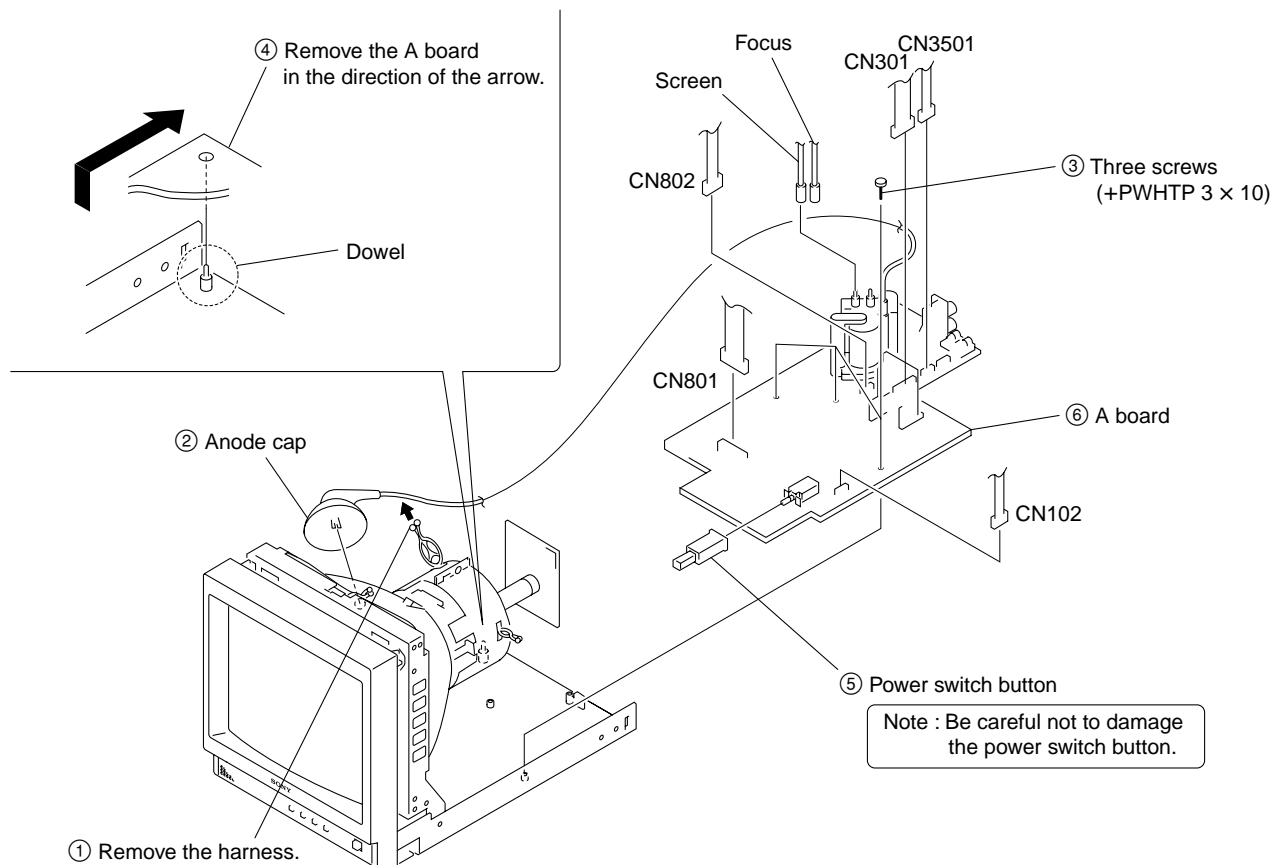
### 1-3-3. Rear Cover Assembly

- Remove the top cover. (Refer to 1-3-1.)



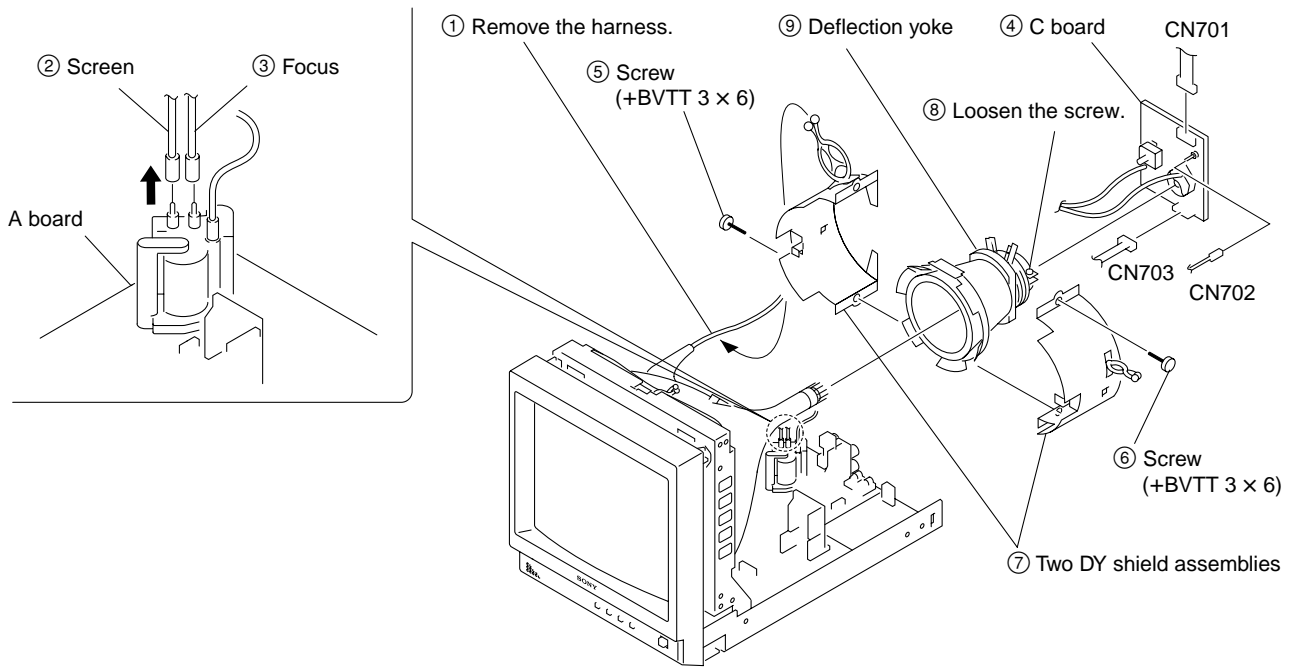
### 1-3-4. A Board

- Remove the rear cover assembly. (Refer to 1-3-3.)



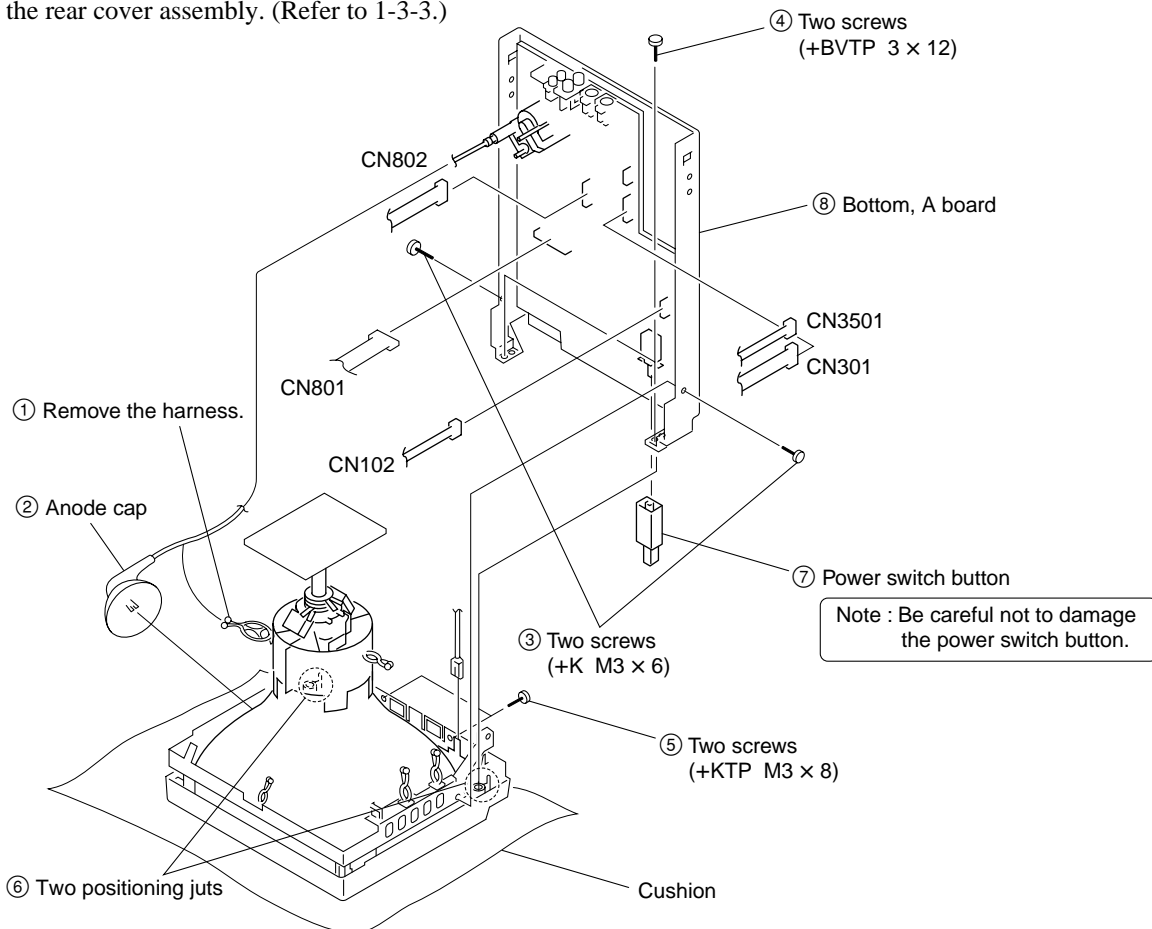
### 1-3-5. C Board and Deflection Yoke

- Remove the rear cover assembly. (Refer to 1-3-3.)



### 1-3-6. Bottom and A Board

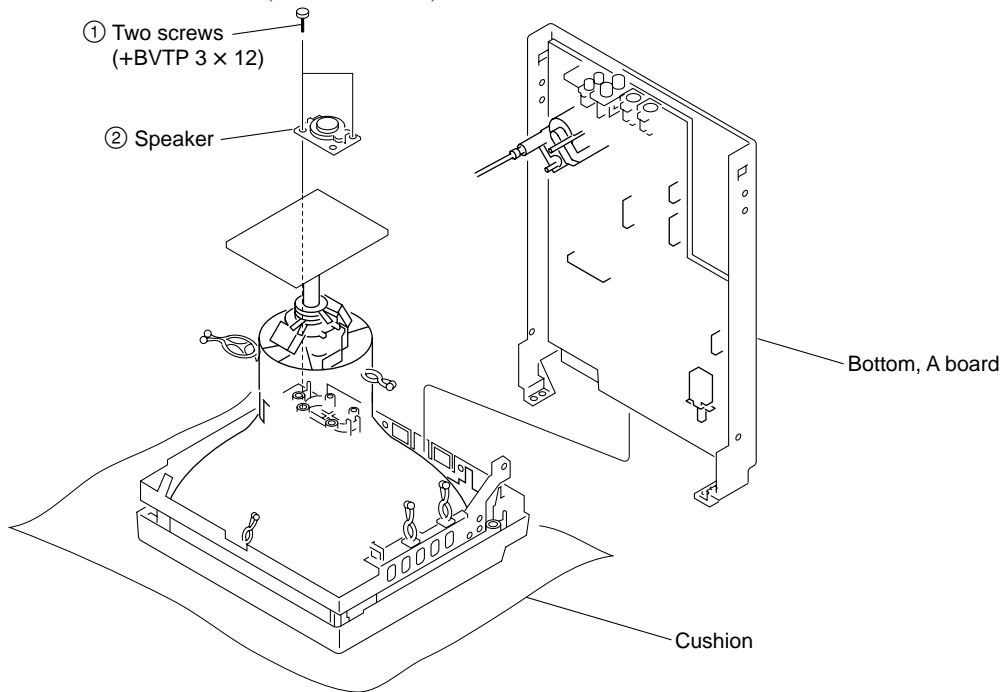
- Remove the rear cover assembly. (Refer to 1-3-3.)





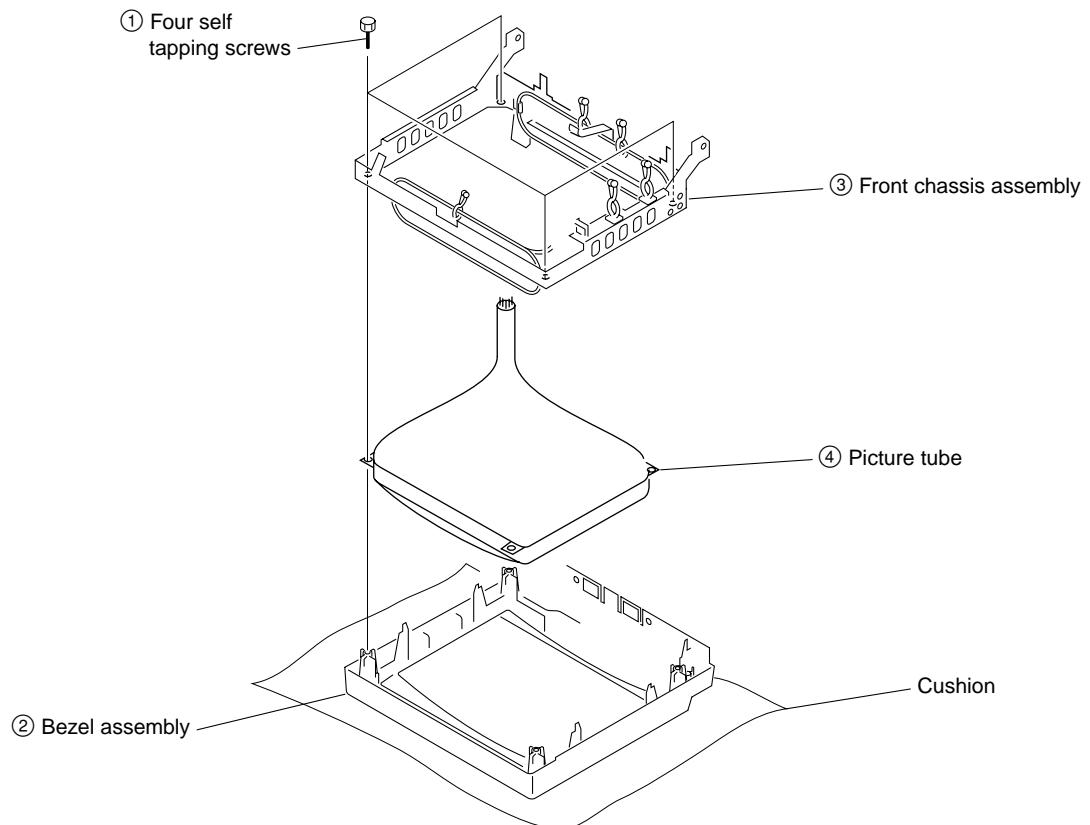
### 1-3-7. Speaker

- Remove the rear cover assembly. (Refer to 1-3-3.)
- Remove the bottom and A board. (Refer to 1-3-6.)



### 1-3-8. Picture Tube and Bezel Assembly

- Remove the rear cover assembly. (Refer to 1-3-3.)
- Remove the C board. (Refer to 1-3-5.)
- Remove the bottom and A board. (Refer to 1-3-6.)

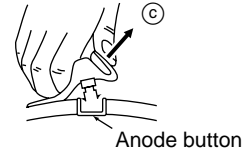
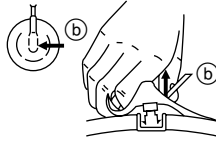
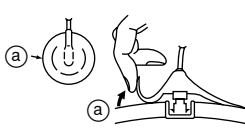


## 1-3-9. Anode Cap

### Note

Short-circuit the anode of the picture tube and the anode cap to the metal chassis, picture tube shield or carbon painted on the picture tube, after removing the anode.

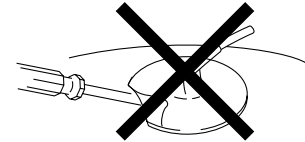
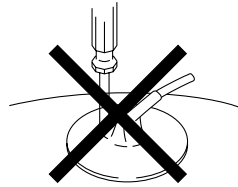
### • Removal Procedure



- (1) Turn up one side of the rubber cap in the direction indicated by arrow (a).
- (2) Using a thumb, pull up the rubber cap firmly in the direction indicated by arrow (b).
- (3) When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow (c).

### • Handling Precautions

- (1) Do not scratch the surface of anode cap with a sharp object.
- (2) Do not press the rubber so hard that it damages the inside of anode caps. A shatter-hook terminal is built into the rubber.
- (3) Do not turn the foot of the rubber over. The shatter-hook terminal will stick out or damage the rubber.



## 1-4. Warning on Power Connection

Use a proper power cord for your local power supply.

	United State, Canada	Europe	Japan
Plug type	LP-30B	— <sup>a)</sup>	YP332
Female end	LS-13	VM0303B	YC-35
Cord type	SB-SVT	H05VV-F	VCTF
Minimum cord set rating	10A/125V	10A/250V	7A/125V
Safety approval	UL/CSA	SEMKO, NEMKO, DEMKO, SEV, KEMA, EI (FIMKO), CEBEC, VDE, BS	DENAN-HO

a) Note : Use an appropriate rating plug which is applied to local regulations.

## Section 2

# Set-up Adjustment

### 2-1. Equipment Required

- Oscilloscope  
Tektronix 2465 or equivalent (with bandwidth of 350 MHz)
- VG (programmable video signal generator)  
VG-854 or equivalent
- Digital VOM  
Advantest TR6845 or equivalent
- Slide induction transformer
- DC power supply

#### Note

Start the following adjustments 5 minutes after the main power is turned on.

\* In this chapter,  indicates the control items in the service mode.

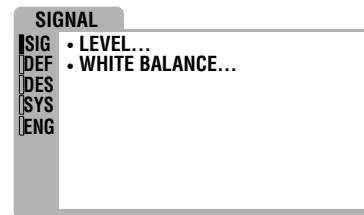
Example :

### 2-2. Preparations (1)

#### Service Mode

This set is provided with a switch for service on the front panel that can be used to make various adjustments. The operation method of this switch is explained in detail below.

1. Entering the service mode  
Simultaneously press the [ENTER] key and the [MENU] key shown on the display of the menu 3 seconds or more.



2. Operating the Service Mode  
Select the desired service item with the [ $\uparrow$ ], [ $\downarrow$ ] key and press the [ENTER] key to enter the adjustment mode.  
Press the [+] key to increase the adjustment value.  
Press the [-] key to decrease the adjustment value.  
Press the [ENTER] key to save the adjustment value.  
Press the [MENU] key to cancel the entry.
3. Finishing the service mode  
Simultaneously press the [ENTER] key and the [MENU] key shown on the display of the menu 3 seconds or more.

#### 4. Executing FACTORY LOAD

If the adjustment data is damaged or lost by some reasons, you can restore the default factory adjustment data by executing FACTORY LOAD as described below.

Select the following sub menus from the Service Menu in the order of : [SYSTEM] → [FACTORY...] → [LOAD...] to read the default factory data. If the default factory data is damaged or the ROM is replaced without executing FACTORY SAVE as described in the following paragraph, you cannot execute FACTORY LOAD.

#### 5. Executing FACTORY SAVE

This operation is to write the FACTORY LOAD data into the factory data area in the memory.

Select the following sub menus from the Service Menu in the order of : [SYSTEM] → [MAINTENANCE ID] and type 111. Then select the following sub menus from the Service Menu in the order of : [ENGINEER] → [FACTORY SAVE] to write the factory data in the memory. FACTORY SAVE is protected from miss operation so that FACTORY SAVE cannot be executed unless MAINTENANCE ID is set.

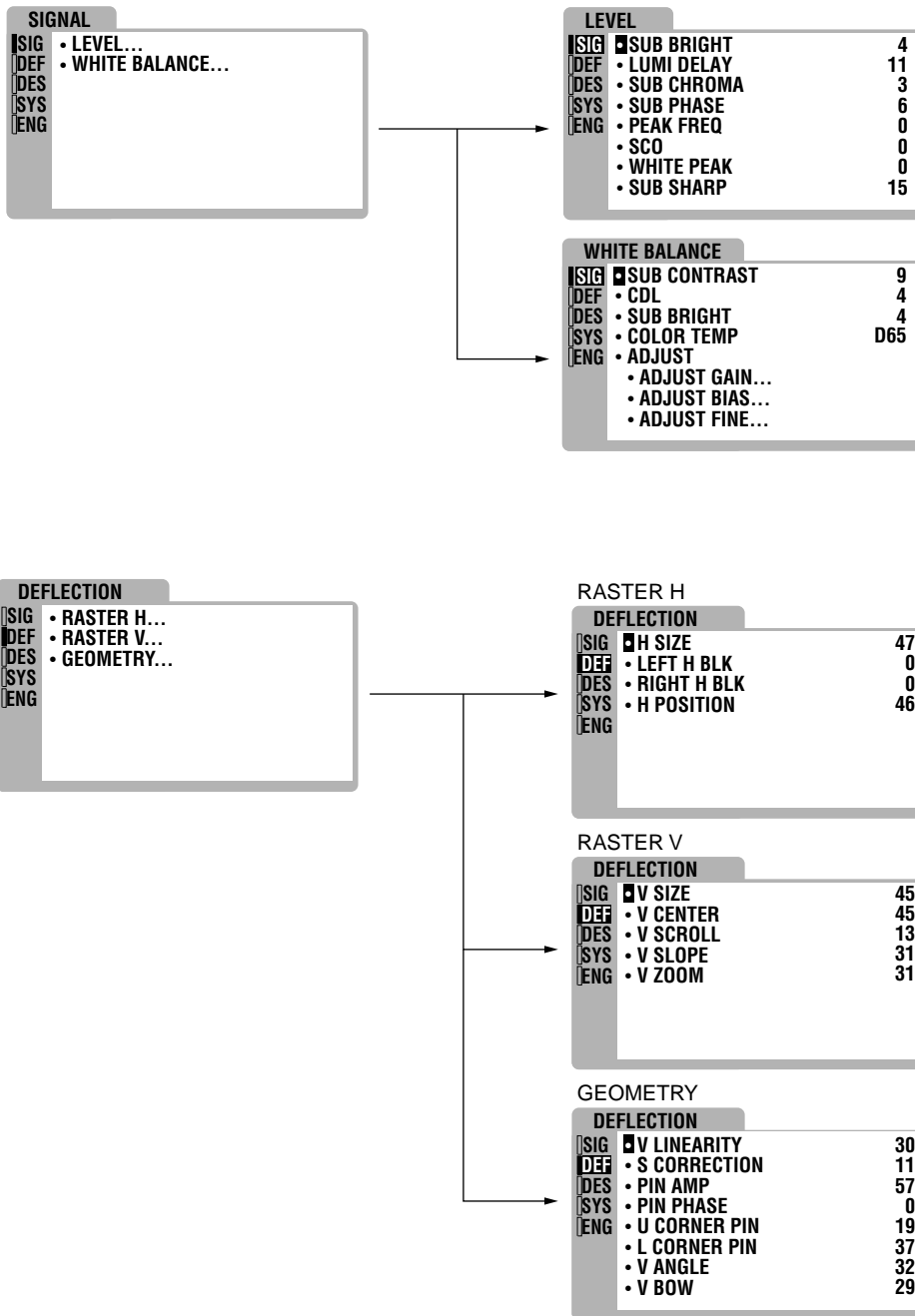
#### FACTORY SET

If the following circuit board is replaced or the following ICs on the respective board is replaced, perform the following settings.

A board, IC001, IC004

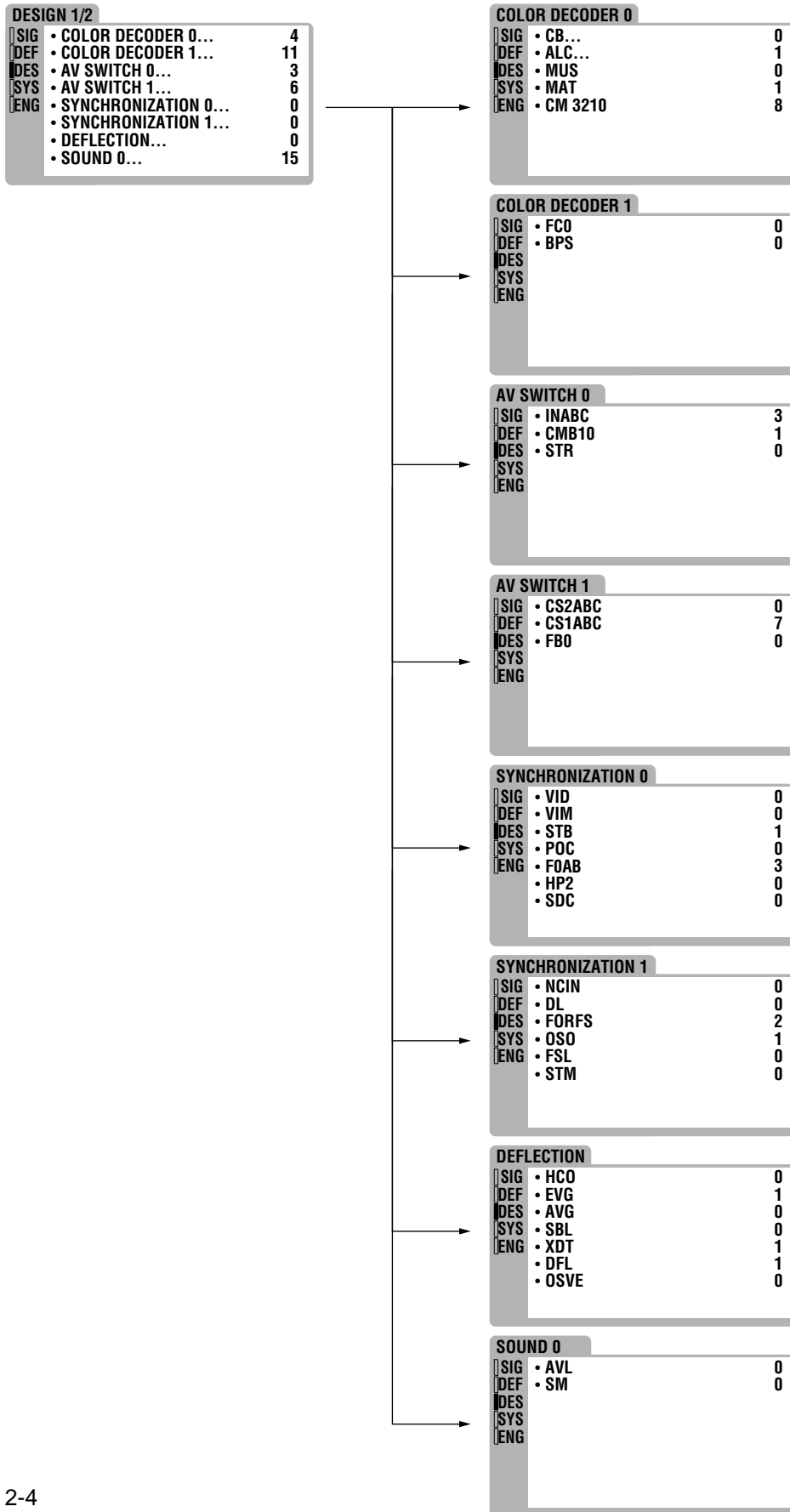
1. Select the following sub menus from the Service Menu in the order of : [SYSTEM] – [MAINTENANCE ID] and type 111.
2. When changing the IC003, select the following sub menus from Service Menu : [ENGINEER] – [CLEAR NVM ON A] and write data.
3. Select the following sub menus from the Service Menu in the order of : [SYSTEM] – [MODEL INCH], [SYSTEM] – [MODEL TYPE] and write the model data of each model in the [MODEL TYPE] referring to table 2-2.
4. Perform all adjustment items of the [SIGNAL] menu and of the [DEFLECTION] menu.
5. Upon completion of adjustment, select the menus [ENGINEER] – [FACTORY SAVE] to save the adjustment data.

# Service Mode screen display



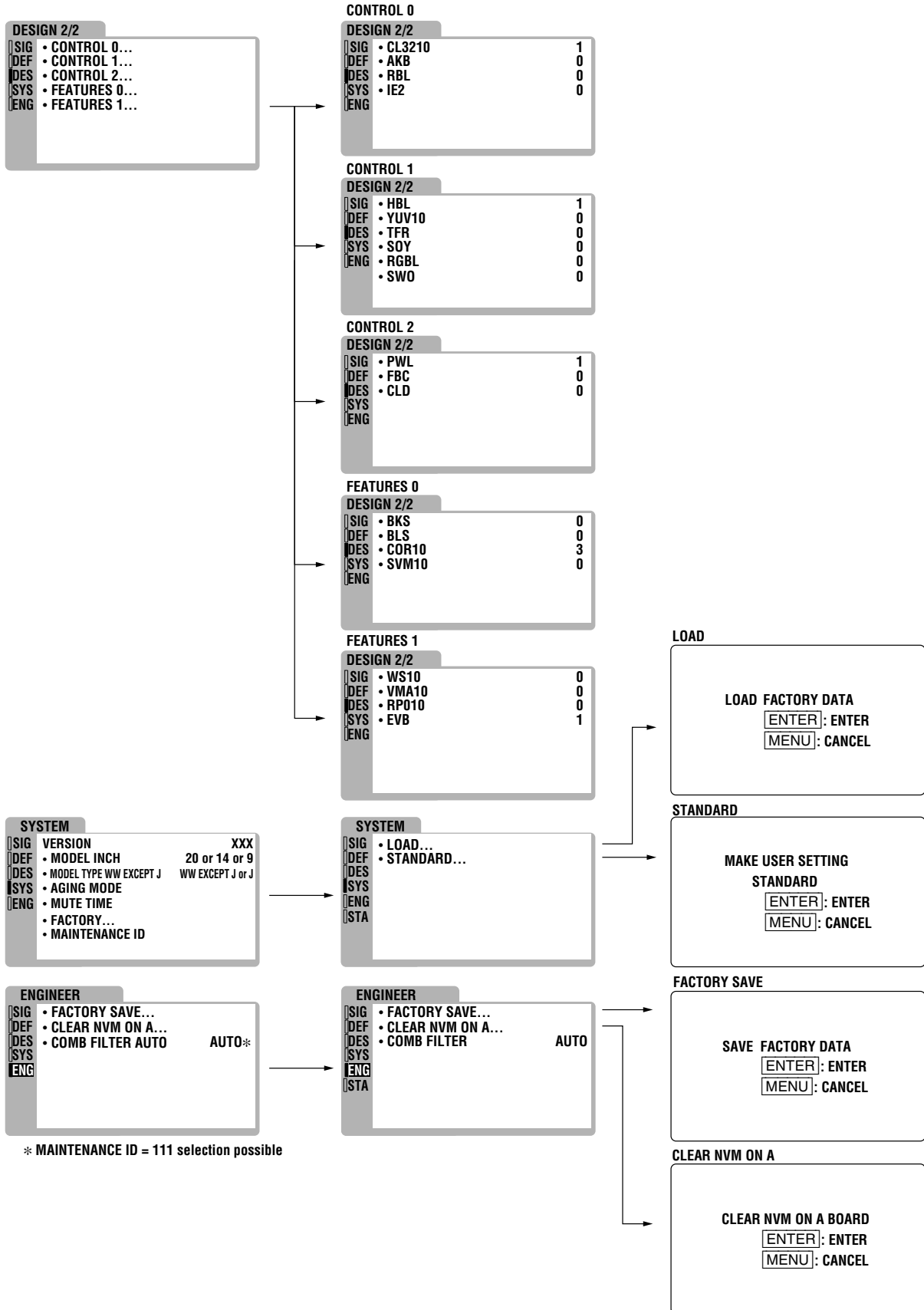
**Note**

When changing DESIGN ITEMS 1/2 and 2/2, set the MAINTENANCE ID to 111 in SYSTEM.



**Note**

When changing DESIGN ITEMS 1/2 and 2/2, set the MAINTENANCE ID to 111 in SYSTEM.



## 2-3. Preparation (2). Initialization

\* Supply composite video signal as shown in Table 2-1.

Signal		Details of signal	Standard level P-W
Composite video	358NT	100 % white	0.714 V
		75 % white	0.536 V
	PAL	100 % white	0.7 V
		75 % white	0.525 V
Voice/sound		-5 dBu	0.436Vrms

Table 2-1

## 2-4. Writing Model Data

1. Select the following sub menus from the Service Menu in the order of : [SYSTEM] → [MODEL INCH], [SYSTEM] → [MODEL TYPE] and write the model data of each model in the [MODEL TYPE] referring to table 2-2.

Model name	Model type	Model inch
PVM-9L1	J	9
PVM-9L1	AUS	9

Table 2-2

2. Select the following sub menus from the Service Menu in the order of : [SIGNAL] → [WHITE BALANCE] and type the following data in [COLOR TEMP].  
 WW EXCEPT J    D65  
 J                    D93

\* Standard inspection state

Unless otherwise specified in this manual, make adjustment under the following conditions.

VOLUME            0  
 CONTRAST        80  
 BRIGHTNESS     0  
 CHROMA           50  
 PHASE            0  
 ASPECT RATIO 4 : 3

## 2-5. Picture Output

### 1. AC input voltage setting

1. Input VIDEO signals and AUDIO signals to respective terminals on the connector panel.
2. Set the slide induction transformer AC voltage as shown in Table 2-3.

Model name	Voltage
PVM-9L1	AC 100 V to 240 V ±10 %

Table 2-3

## 2-6. Landing Adjustment (1)

1. CONTRAST... MAX  
 BRIGHT... Conspicuous position
2. Roughly adjust the white balance, G2, and convergence.
3. Switch the video signal generator output signal to green only.
4. Move back the DY backward (in the direction toward neck).
5. Adjust the purity knob so that the green will come to the center of the screen. Make R and B almost identical. (Fig. 2-1)
6. Switch to B only, R only, and G only and verify each.
7. Bring the deflection yoke gradually forward and adjust the deflection yoke so that R and B on both sides of the screen will be green. (Fig.2-2 → Fig. 2-3)
8. If the deflection yoke comes forward too much, the pattern shown in Fig.2-4 will appear. If so, move the deflection yoke backward. (Fig.2-4 → Fig.2-3)
9. Switch the signal generator output signal to the BLUE only color and confirm the screen. (Fig. 2-6)
10. Switch the signal generator output signal to the RED only color and confirm the screen. (Fig. 2-9)
11. When two colors are mixed, set the mixed color as the standard, and repeat operations 6 and 7.
12. Switch to an all-white signal and check the uniformity.
13. When the deflection yoke position is determined, fasten it with the DY screw.



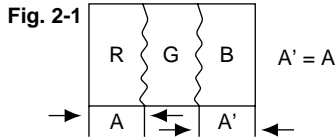


Fig. 2-2

Fig. 2-3

Fig. 2-4

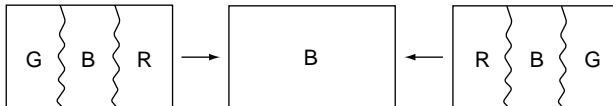


Fig. 2-5

Fig. 2-6

Fig. 2-7



Fig. 2-8

Fig. 2-9

Fig. 2-10

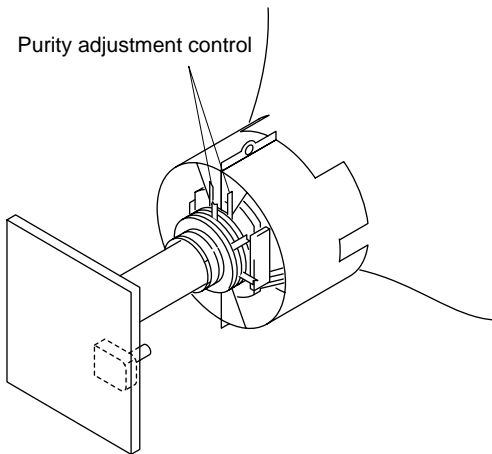


Fig. 2-11

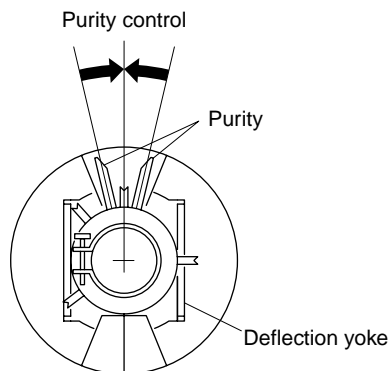


Fig. 2-12

## 2-7. Rough Adjustment for Size

1. Receive PAL SPCB signal.
2. Reduce H size to be able to see whole raster, and set the brightness to maximum.
3. Adjust raster center with S501.
4. Set brightness to 0.
5. H SIZE  $\Rightarrow$  17.0 blocks  
V SIZE  $\Rightarrow$  13.0 blocks

Adjust the picture size roughly with V CENT, V SIZE, H POSITION, H SIZE and PIN AMP.

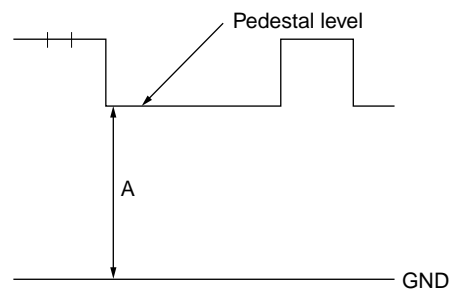
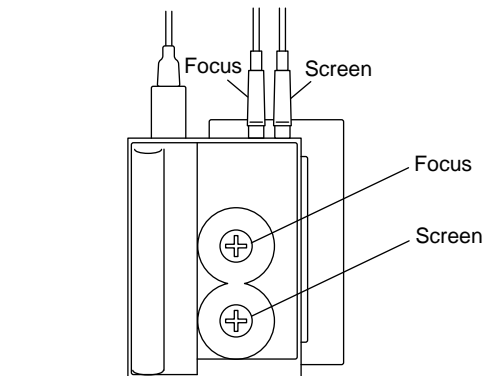
## 2-8. G2 Adjustment

### Conditions

CONTRAST : 80  
BRIGHTNESS : 0

1. Connect the 575/50I all black signal to the LINE A connector.
2. Select the cathode that shows the highest pedestal level among the red, green and blue cathodes.
3. Connect an oscilloscope probe to the following test points and adjust the G2 control (SCREEN) so that the pedestal level satisfies the specification.

RED : KR  
GREEN : KG  
BLUE : KB



Standard value A =  $95 \pm 2$  Vdc

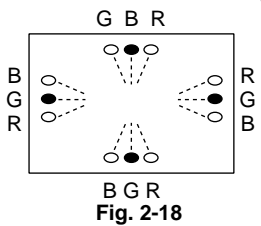
Fig. 2-13

## 2-9. Deflection Yoke Neck Rotation Adjustment

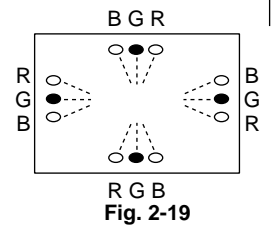
1. If there are mis-convergence on both sides of X and Y axes, move the DY neck in the direction of the arrow so that the degree of mis-convergence satisfies the allowable range of specification over the entire screen.

- (1) Reverse cross mis-convergence pattern (2) Cross mis-convergence pattern

Move the deflection yoke downward.

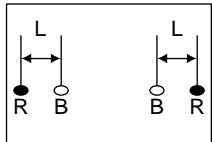


Move the deflection yoke upward.



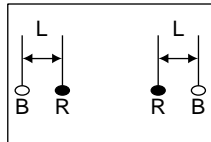
- (3) Pattern of left-sided deflection yoke

Move the deflection yoke to the right when viewed from the CRT screen.

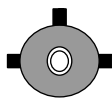


- (4) Pattern of right-sided deflection yoke

Move the deflection yoke to the left when viewed from the CRT screen.

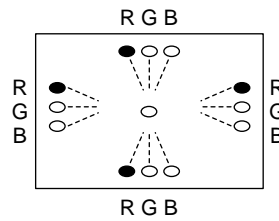


2. Insert the wedge between the deflection yoke and CRT funnel to lock the deflection yoke. (Fig.2-18)



**Fig. 2-18**

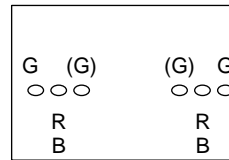
3. The following patterns cannot be corrected by turning the neck. (Figs.2-19, 2-20, and 2-21)



\* Gun rotation

The X-axis and Y-axis beams are distorted on both sides.

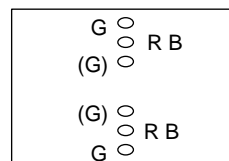
**Fig. 2-19**



\* HCR Large (small)

The horizontal portion of the G raster is wider (narrower) than that of the RB raster on both sides of the screen.

**Fig. 2-20**



\* VCR Large (small)

The vertical portion of the G raster is wider (narrower) than that of the RB raster on both sides of the screen.

**Fig. 2-21**

## 2-10. Convergence Adjustment (1)

1. Input a dot pattern signal.  
CONTRAST... Conspicuous position  
BRIGHT... 0
2. Align the horizontal R, G, and B dots at the center of the screen by adjusting RV701 on the C board. (H-STAT ADJ.)  
\* When H-CENT is changed after H-STAT adjustment, readjust H-STAT. (H-STAT will change by means of H-CENT VR.)
3. Using V-STAT Mg, align the top and bottom of R, G and B on center of the screen. (Fig. 2-22, 2-23)  
\* After V-STAT adjustment, paint-lock the knob.

### V-STAT Mg knob

While keeping the angles A and B equal ( $I = I'$ ), align the vertical convergence.

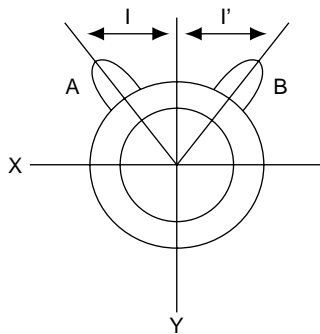


Fig. 2-22 Good example

If the A and B knobs are not symmetrical ( $I \neq I'$ ), the focus may deteriorate, beam striking or other adverse effects may occur.

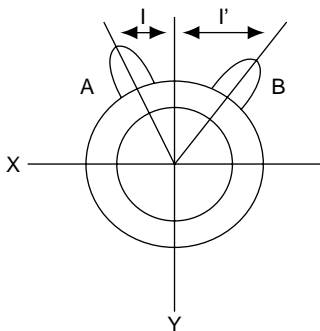


Fig. 2-23 Bad example

4. For HMC, use the six poles Mg to adjust the R and B dots so that they will be symmetrical horizontally with respect to the G dot. (Fig. 2-24)

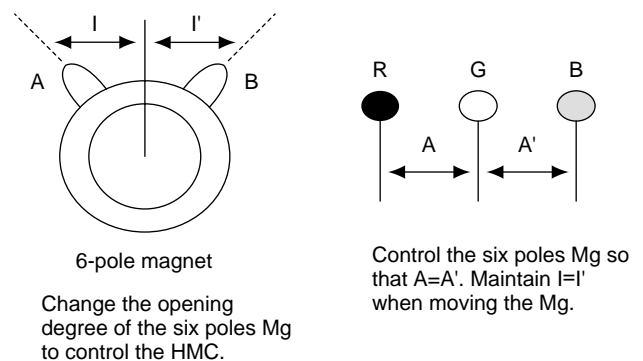


Fig. 2-24

5. For VMC, use the six poles Mg to adjust the R and B dots so that they will be symmetrical vertically with respect to the G dot. (Fig. 2-25)

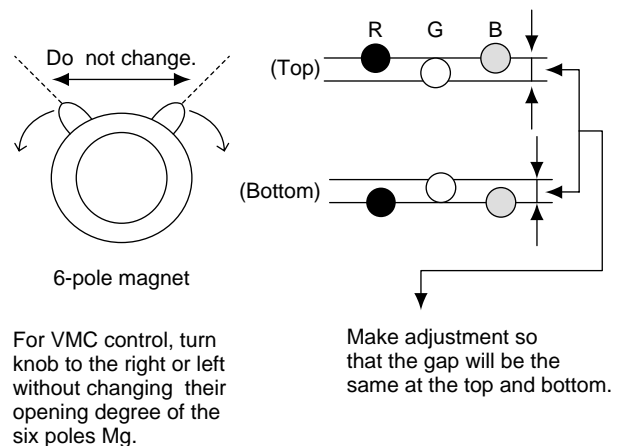


Fig. 2-25

6. Repeat the adjustment steps from 2 through 5.  
\* The above adjustment may affect the landing, so after adjustment, check the landing again.
7. Paint-lock the knobs after adjustment.

When the right convergence is not gotten even after Convergence Adjustment (1), use the permalloy sheet to adjust and fix the permalloy with RTV.

## 2-11. Landing Adjustment (2)

1. Attach the wobbling coil of allowance checker to neck ass'y.
2. Input green flat field signal to LINE A.
3. Turn on the main power of the monitor, and degauss CRT screen with a degausser.
4. Receive white flat field signal, and set brightness to 0, contrast to 80.
5. Make sure that there is no flicker when changing input signals among G, B, and R signals.
6. Select G signal and adjust the purity.
7. In case that flicker occurs in a flat field signal, adjust with Mg.
8. When attaching a Mg, it should be on a center line between CRT and the mislanding area.
9. Rotate the Mg to eliminate the mislanding.
10. Confirm that there is no mislanding on the other colors.
11. Remove the air-core coil. Check uniformity in white flat field signal.
12. Lock purity with white paint.
13. Confirmation after Mg is attached.
  - a. Deflection distortion
  - b. Landing after degaussing CRT
  - c. Convergence
  - d. Attach Mg to DY with bond.

## 2-12. Focus Adjustment

1. Input 480/60I cross hatch-signal.
2. Adjust the focus so that the center of screen is the best. VR on the upper side FBT
3. Input 480/60I entire white signal and ensure the uniformity of entire screen.  
Specification : 4 JND or less

## 2-13. White Balance Adjustment

### 2-13-1. Sub Bright Adjustment

1. Receive Gray Scale pattern signal.  
\* Gray scale : 0, 5, 10, 15 IRE (4 Steps)
2. Set the following items at PICT/SOUND CTRL.  
CONTRAST  $\Rightarrow$  MIN  
BRIGHTNESS  $\Rightarrow$  0 (CENTER)
3. Adjust SUB BRIGHT using the [SUB BRIGHT] at SERVICE MODE [SIGNAL] - [WHITE BALANCE].  
Check 0 and 5 IRE section of Gray Scale is completely cut off and 10 IRE section of it lights faintly. (If not readjust it.)

### 2-13-2. White Balance Adjustment [D65]

1. Set the COLOR TEMP to D65.
2. Receive window pattern signal.
3. Adjust the D65 white balance within standard (description below) using the [R DRIVE] and [B DRIVE] at SERVICE MODE [SIGNAL]-[WHITE BALANCE]-[AJUST GAIN].

	X	Y
D65	313	329

Switch the item R  $\Rightarrow$  G  $\Rightarrow$  B with [ENTER], and change the data with [+]/[-].

4. Change over to all white signal and lower signal level, set brightness to 3 (+1/-0) cd/m<sup>2</sup>.
5. Adjust the D65 white balance within standard (description below) using the [OFFSET R] and [OFFSET G] at SERVICE MODE [SIGNAL]-[WHITE BALANCE]-[AJUST BIAS].

	X	Y
D65	313	329

Switch the item R  $\Rightarrow$  G with [ENTER], and change the data with [+]/[-].

6. Repeat the manual 2 to 5 until be able to adjust GAIN side and BIAS side to the same value.

### 2-13-3. White Balance Adjustment [D93]

1. Receive window pattern signal.
2. Set the COLOR TEMP to D93.
3. Adjust the D93 white balance within standard (description below) using the [R DRIVE] and [B DRIVE] at SERVICE MODE [SIGNAL]-[WHITE BALANCE]-[AJUST GAIN] .

	X	Y
D93	283	298

Switch the item R ⇔ G ⇔ B with [ENTER], and change the data with [+]/[-].

4. Change over to all white signal and lower signal level, set brightness to 3cd/m<sup>2</sup>.
5. Adjust the D65 white balance within standard (description below) using the [OFFSET R] and [OFFSET G] at SERVICE MODE [SIGNAL]-[WHITE BALANCE]-[AJUST BIAS] .

	X	Y
D93	283	298

Switch the item R ⇔ G with [ENTER], and change the data with [+]/[-].

6. Repeat the manual 2 to 5 until be able to adjust GAIN side and BIAS side to the same value.

### 2-14. Deflection Adjustment

#### Note

V.CENT and V.SIZE should be checked after V.LIN adjustment.

#### 2-14-1. 525 Vertical Deflection Adjustment

1. Receive 525 SPCB signal.
2. Set the following settings.  
CONTRAST ⇔ 80  
BRIGHTNESS ⇔ 0
3. Enter service mode.
4. Adjust V.SIZE roughly to 13 blocks with [V SIZE] in [DEFLECTION]-[RASTER V] at SERVICE MENU. And adjust V.CENT with [V CENTER].

#### Note

Confirm these items and data as follow.

[DEFLECTION]-[RASTER V] at SERVICE MENU

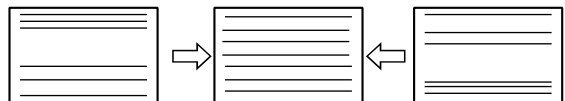
V. SCROLL : 31

V. SLOPE : 20

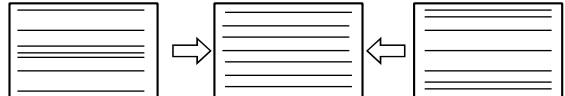
V. ZOOM : 0

5. Receive 525 Cross-Hatch signal.
6. Confirm the following items.
  - Confirm DY tilt
  - Confirm upper/lower V PIN
7. Adjust the Horizontal trapezoid with [TLY] at DY.
8. Adjust V.LIN with [V LINEARITY], [S-CORRECTION] in [DEFLECTION]-[GEOMETRY] at SERVICE MENU.

V LINEARITY



S-CORRECTION



- Adjust V.SIZE with [V SIZE] in [DEFLECTION]-[GEOMETRY] at SERVICE MENU.

Standard V.SIZE specification

	525 SPCB	625 SPCB
4 : 3	13.4 ±0.2 blocks	13.0 ±0.2 blocks
16 : 9	96 ±2 mm	96 ±2 mm

- Repeat the manual 8 and 9 until be satisfy the both specifications.
- Set to 16:9 mode.
- Adjust 16:9 V.SIZE with [V SIZE] in [DEFLECTION]-[GEOMETRY] at SERVICE MENU.

Confirm these items and data as follows.

V. SCROLL : 31  
 V. SLOPE : 10  
 V. ZOOM : 0

**Note**

V size in 16:9 mode should be measured without flag signal in periphery of the picture.

- Back to 4:3 mode.

## 2-14-2. 625 Vertical Deflection Adjustment

- Receive 625 SPCB signal.
- Set the following settings.  
 CONTRAST ⇒ 80  
 BRIGHTNESS ⇒ 0
- Enter service mode.
- Adjust V.SIZE roughly to 13 blocks with [V SIZE] in [DEFLECTION]-[RASTER V] at SERVICE MENU. And adjust V.CENT with [V CENTER].

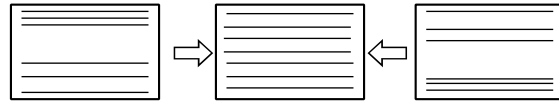
**Note**

Confirm these items and data as follow.

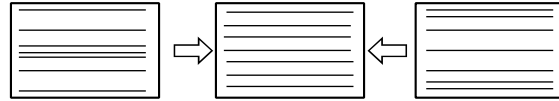
[DEFLECTION]-[RASTER V] at SERVICE MENU  
 V. SCROLL : 31  
 V. SLOPE : 20  
 V. ZOOM : 0

- Receive 625 Cross-Hatch signal.
- Adjust V.LIN with [V LINEARITY], [S-CORRECTION] in [DEFLECTION]-[GEOMETRY] at SERVICE MENU.

V LINEARITY



S-CORRECTION



- Adjust V.SIZE with [V SIZE] in [DEFLECTION]-[GEOMETRY] at SERVICE MENU.

Standard V.SIZE specification

	525 SPCB	625 SPCB
4 : 3	13.4 ±0.2 blocks	13.0 ±0.2 blocks
16 : 9	96 ±2 mm	96 ±2 mm

- Repeat the manual 6 and 7 until be satisfy the both specifications.
- Set to 16:9 mode.
- Adjust 16:9 V.SIZE with [V SIZE] in [DEFLECTION]-[GEOMETRY] at SERVICE MENU.  
 Confirm these items and data as follows.  
 V. SCROLL : 31  
 V. SLOPE : 10  
 V. ZOOM : 0
- Back to 4 : 3 mode.

## 2-15. Horizontal Deflection Adjustment

### 2-15-1. 525 Horizontal Deflection Adjustment

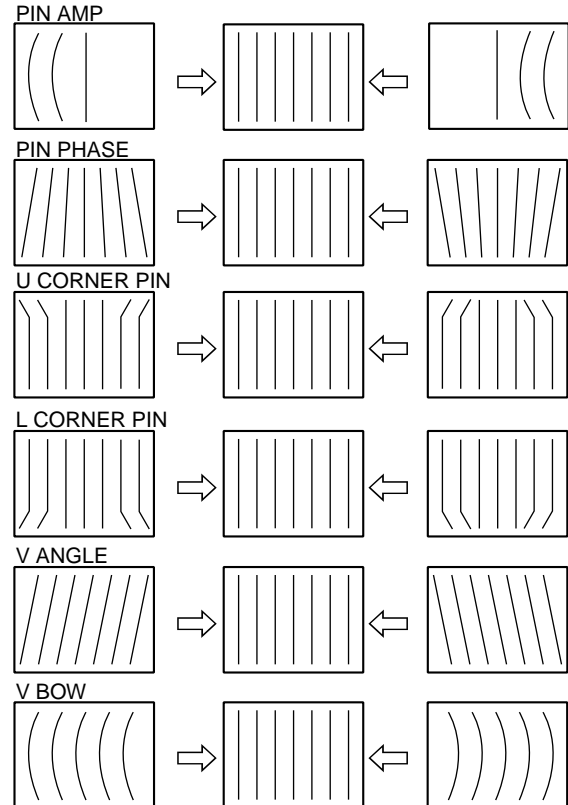
1. Receive 525 SPCB signal.
  2. Set to following settings.  
CONTRAST  $\Rightarrow$  80  
BRIGHTNESS  $\Rightarrow$  0
  3. Enter service mode.
  4. Adjust H.SIZE with [H SIZE] in [DEFLECTION]-[RASTER H] at SERVICE MENU.  
Standard H.SIZE specification
- |       | 525 SPCB              | 625 SPCB              |
|-------|-----------------------|-----------------------|
| 4 : 3 | 17.6 $\pm$ 0.2 blocks | 17.0 $\pm$ 0.2 blocks |
5. Receive 525 Cross-Hatch signal.
  6. Adjust horizontal deflection with [PIN AMP], [PIN PHASE], [U CORNER PIN], [L CORNER PIN], [V ANGLE], [V BOW] in [DEFLECTION]-[GEOMETRY] at SERVICE MENU.
  7. Set to 16:9 mode.
  8. Adjust horizontal deflection with [PIN AMP], [PIN PHASE], [U CORNER PIN], [L CORNER PIN], [V ANGLE], [V BOW] in [DEFLECTION]-[GEOMETRY] at SERVICE MENU.

### 2-15-2. 625 Horizontal Deflection Adjustment

1. Receive 625 SPCB signal.
2. Set to following settings.  
CONTRAST  $\Rightarrow$  80  
BRIGHTNESS  $\Rightarrow$  0
3. Enter service mode.
4. Adjust H.SIZE with [H SIZE] in [DEFLECTION]-[RASTER H] at SERVICE MENU.  
Standard H.SIZE specification

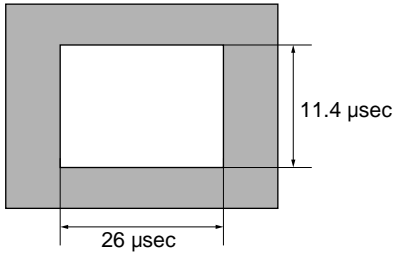
	525 SPCB	625 SPCB
4 : 3	17.6 $\pm$ 0.2 blocks	17.0 $\pm$ 0.2 blocks

5. Receive 625 Cross-Hatch signal.
6. Adjust horizontal deflection with [PIN AMP], [PIN PHASE], [U CORNER PIN], [L CORNER PIN], [V ANGLE], [V BOW] in [DEFLECTION]-[GEOMETRY] at SERVICE MENU.
7. Set to 16:9 mode.
8. Adjust horizontal deflection with [PIN AMP], [PIN PHASE], [U CORNER PIN], [L CORNER PIN], [V ANGLE], [V BOW] in [DEFLECTION]-[GEOMETRY] at SERVICE MENU.



## 2-16. Sub Contrast Adjustment

1. Set ASPECT to 4:3.
2. Input window pattern signal.  
Window size is less than the following area.



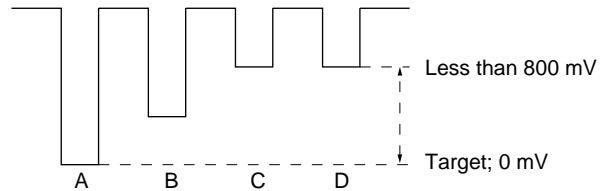
3. Adjust window brightness within standard (description below) using the [SUB CONTRAST] at SERVICE MODE [SIGNAL]-[WHITE BALANCE].  
 $170 \pm 10 \text{ cd/m}^2$
4. Set ASPECT to 16:9.
5. Adjust window brightness within standard (description below) using the [SUB CONTRAST] at SERVICE MODE [SIGNAL]-[WHITE BALANCE].  
 $170 \pm 10 \text{ cd/m}^2$

## 2-17. Adjustment of NTSC Mode

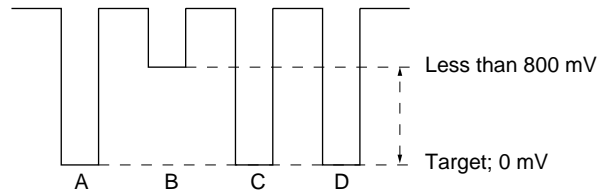
### 2-17-1. NTSC Composite Input

Input NTSC 75% color bar signal.

1. Adjust SUB CHROMA so that CN301-pin1 (JL301) waveform A and D fall on same level.



2. Adjust SUB CHROMA so that CN301-pin1 (JL301) waveform B and C fall on same level.

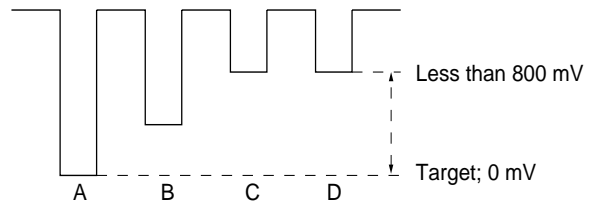


3. Repeat steps 1 and 2, and adjust so that A, B, C, D fall on same level.

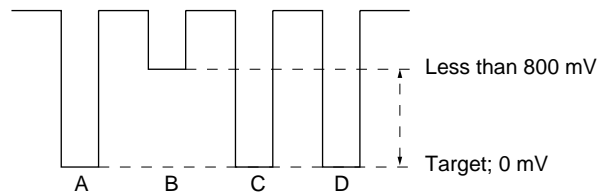
### 2-17-2. NTSC Y/C Input

Input NTSC 75% color bar signal.

1. Adjust SUB CHROMA so that CN301-pin1 (JL301) waveform A and D fall on same level.



2. Adjust SUB PHASE so that CN301-pin1 (JL301) waveform B and C fall on same level.



3. Repeat steps 1 and 2, and adjust so that A, B, C, D fall on same level.

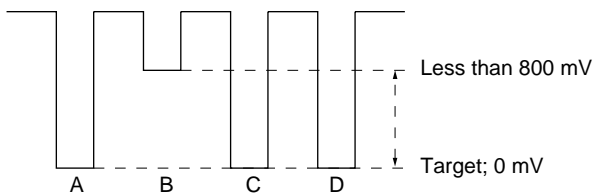
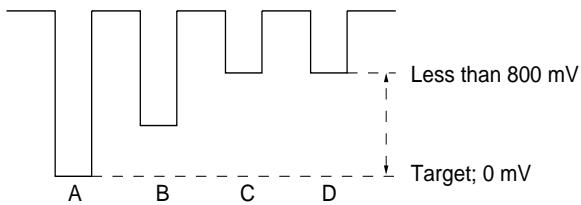


## 2-18. Adjustment of PAL Mode

### 2-18-1. PAL Composite Input

Input PAL 75% color bar signal.

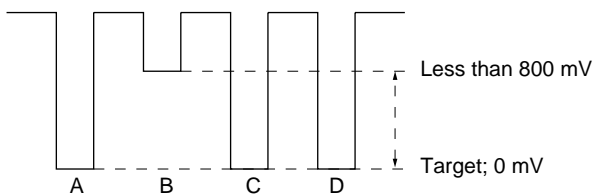
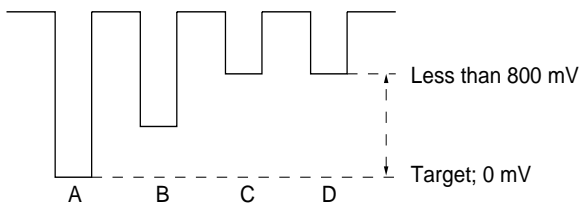
1. Adjust SUB CHROMA so that CN301-pin1 (JL301) waveform A and D fall on same level.



### 2-18-2. PAL Y/C Input

Input PAL 75% color bar signal.

1. Adjust SUB CHROMA so that CN301-pin1 (JL301) waveform A from D fall on same level.





## Section 3

### Safety Related Adjustment

This section explains the adjustment procedure when safety related component(s) is replaced. Perform the following adjustment when the safety related component(s) is replaced.

#### [Preparation]

Equipment Required

- VG (programmable video signal generator)  
VG-854 or equivalent
- DC power supply
- Digital VOM  
Advantest TR6845 or equivalent
- Slide induction transformer

#### Note

Start the following adjustments after 5 minutes have passed after the main power is turned on.

#### 3-1. +B Voltage Check

When the parts shown below are replaced, confirm the matters described below.

A board

IC601, IC651, R624, R651, R653, T601, PH601

1. Supply the power source voltage of 127 to 130 V<sub>AC</sub> to the set and turn ON the power.
2. Input the 480/60I all black signal, and adjust the BRIGHT and CONTRAST knobs on the front panel to MIN.
3. Check that the +B voltage is 38.5 to 41.5 V<sub>DC</sub>.  
+B voltage measurement point  
Between CN1501 pin-1 on A board and GND.

#### 3-2. Protection Circuit Confirmation

When the parts (with a  $\blacksquare$  mark on the circuit diagram) shown below are replaced, confirm the matters described below.

A board (HV Protector Circuit)

- $\blacksquare$  ..... D302, D303, D561, IC301, IC302, Q302, Q303, Q304, Q559, Q560, Q561, Q562, R316, R317, R318, R319, R320, R321, R322, R323, R325, R326, R327, R328, R588, R589, R590, R591, R592, T501 (FBT)

A board (IK Protector Circuit)

- $\blacksquare$  ..... D301, D561, IC302, Q301, Q559, Q560, Q561, Q562, R304, R305, R306, R307, R308, R309, R310, R311, R312, R313, R314, R315, R588, R589, R590, R591, R592, T501 (FBT)

##### 3-2-1. Hold-down Circuit Connection Confirmation

1. Supply the power source voltage of 117 to 120 V<sub>AC</sub> to the set and turn ON the power.
2. Input the 480/60I all black signal, and adjust the BRIGHTNESS and CONTRAST knobs on the front panel to MIN.
3. Check that the voltage between C314  $\oplus$ side and GND satisfies the following specified value.  
3.8 V<sub>DC</sub> or more

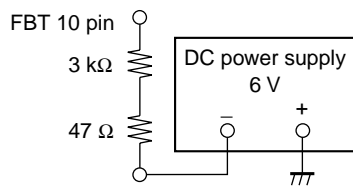
##### 3-2-2. HV Protector Circuit Confirmation

1. Supply AC power voltage of 127 to 130 V<sub>AC</sub> to the unit and turn the POWER ON.
2. Input the 480/60I all black signal, and adjust the BRIGHTNESS and CONTRAST knobs on the front panel to MIN.
3. Check that the voltage between the C314  $\oplus$ side and GND satisfies the specified value.  
Specified value : 4.5 to 4.7 V<sub>DC</sub>
4. Confirm that the protector circuit is not activated.
5. Apply the following voltage between the C314  $\oplus$ side and GND on the A board, and confirm that the protector circuit is activated and raster disappears.  
4.98 to 5.13 V<sub>DC</sub>

### 3-2-3. IK Protector Confirmation

1. Supply the power source voltage of 127 to 130 VAC to the set and turn ON the power.
2. Input the 480/60I all black signal, and adjust the BRIGHTNESS and CONTRAST knobs on the front panel to MIN.
3. Connect the resistor ( $3\text{ k}\Omega + 47\ \Omega$ ) between the FBT 10 pin (ABL) on the A board and external DC power supply (-6 V).

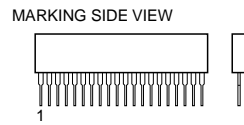
Connection diagram



4. Turn ON the DC power supply.
5. Confirm that the protector circuit is activated and raster disappears.

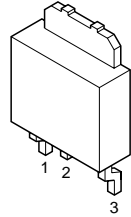
## Section 4 Semiconductors

**AN5278**

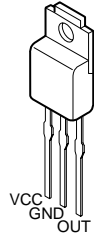


9pin SIP

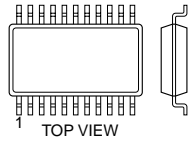
**BA033T**



**BA08T**

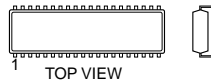


**CXA1211M**  
**CXA1211M-T4**  
**LM358M**  
**M24C08-WMN6T**  
**M24C08-WMN6T(A)**



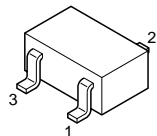
8pin SOP

**LM358M-FL63**

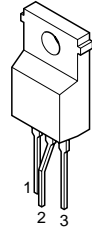


8pin DIP

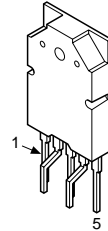
**PST573IMT**



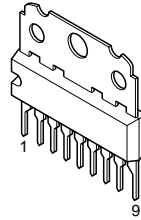
**SE040**



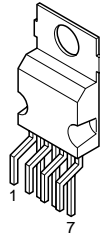
**STR-F6653-LF1351**



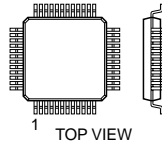
**TDA6108JF/N1B**



**TDA8177**

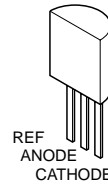


**TDA9394H/N1/5.518**  
**TDA9394H/N1/5/1179.518**

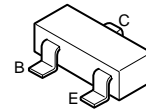


80pin QFP

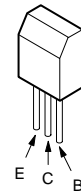
**UPC1093J**  
**UPC1093J-T**



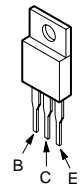
**2SA1037AK-T146-QR**  
**2SA1037AK-T146-R**  
**2SA1162-G**  
**2SB709A-QRS-TX**  
**2SC1623-L5L6**  
**2SC2412K-T-146-QR**  
**2SD601A-QRS-TX**  
**2SD601A-Q-TX**  
**DTC114GKAT146**  
**DTC144EKA**  
**DTC144EKA-T146**



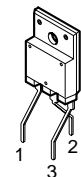
**2SC2958**  
**2SC2958-TL**



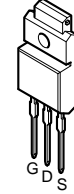
**2SD1134**  
**2SD1134-C**



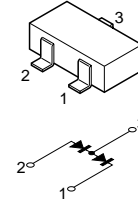
**2SD2578-CA**



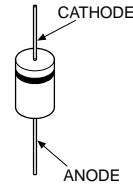
**2SJ175**



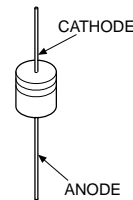
**1SS226**  
**1SS226-TE85L**



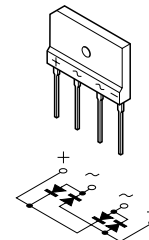
**1SS83**  
**1SS83TA**  
**D1NL20U**  
**EGP20G**  
**EL1Z(RECTI)**  
**GP08D**  
**GP08DPKG23**  
**RGP10GPKG23**



**D1NS4**

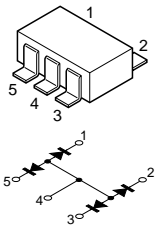


**D4SB60L**

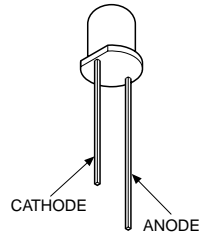


# Diode, LED

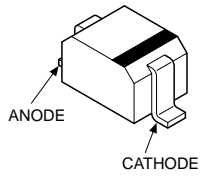
**FMN-G12S**



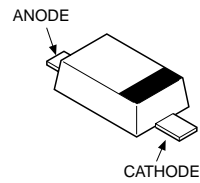
**SLR-56MC3F**  
**SLR-56MC3F**



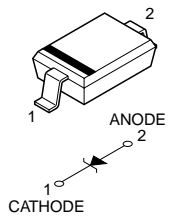
**MA111-(K8).S0**  
**MA111-TX**



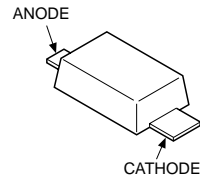
**UDZSTE-173.9B**  
**UDZS-TE17-5.1B**  
**UDZSTE-175.1B**  
**UDZS-TE17-6.2B**  
**UDZS-TE17-9.1B**  
**UDZSTE-179.1B**



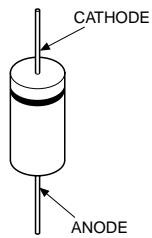
**MM3Z12VST1**  
**MM3Z22VT1**



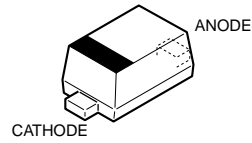
**UDZS-TE17-5.6B**



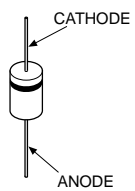
**RGP15J-6040G23**



**UDZSTE-175.6B**



**RN1Z-LF-B1**  
**RU-1P**



# Section 5

## Spare Parts

### 5-1. Notes on Repair Parts

#### 1. Safety Related Components Warning

##### **WARNING**

Components marked  $\triangle$  are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

##### **WARNHINWEIS**

Les composants identifiés par la marque  $\triangle$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

#### 2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.

Parts List has the present standardized repair parts.

#### 3. Stock of Parts

Parts marked with “o” at SP (Supply Code) column of the Spare Parts list may not be stocked. Therefore, the delivery date will be delayed.

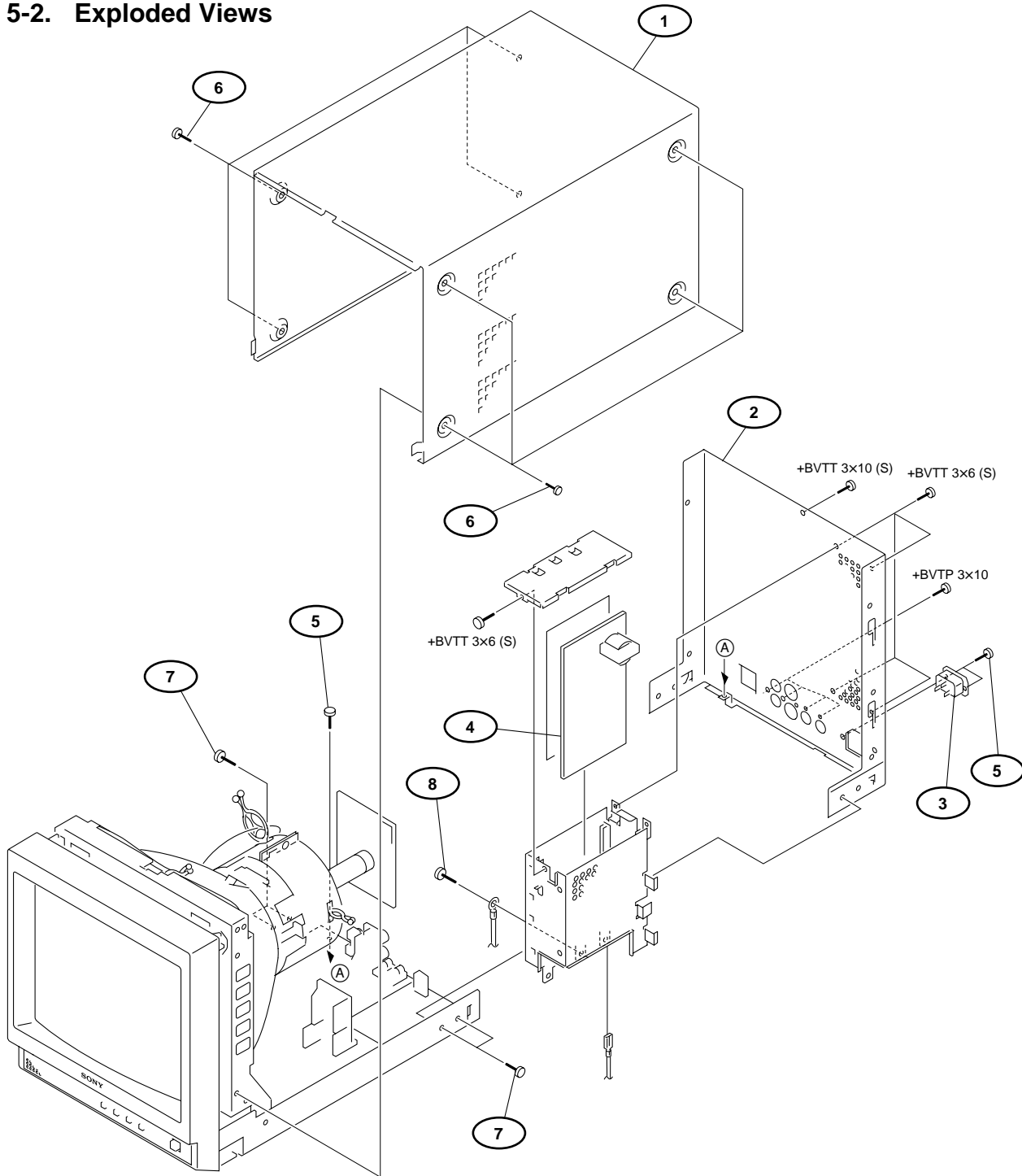
Items with no part number and no description are not stocked because they are seldom required for routine service.

#### 4. Units for Capacitors, Inductors and Resistors

The following units are assumed in Schematic Diagrams, Electrical Parts List and Exploded Views unless otherwise specified.

Capacitors	: $\mu\text{F}$
Inductors	: $\mu\text{H}$
Resistors	: $\Omega$

5-2. Exploded Views



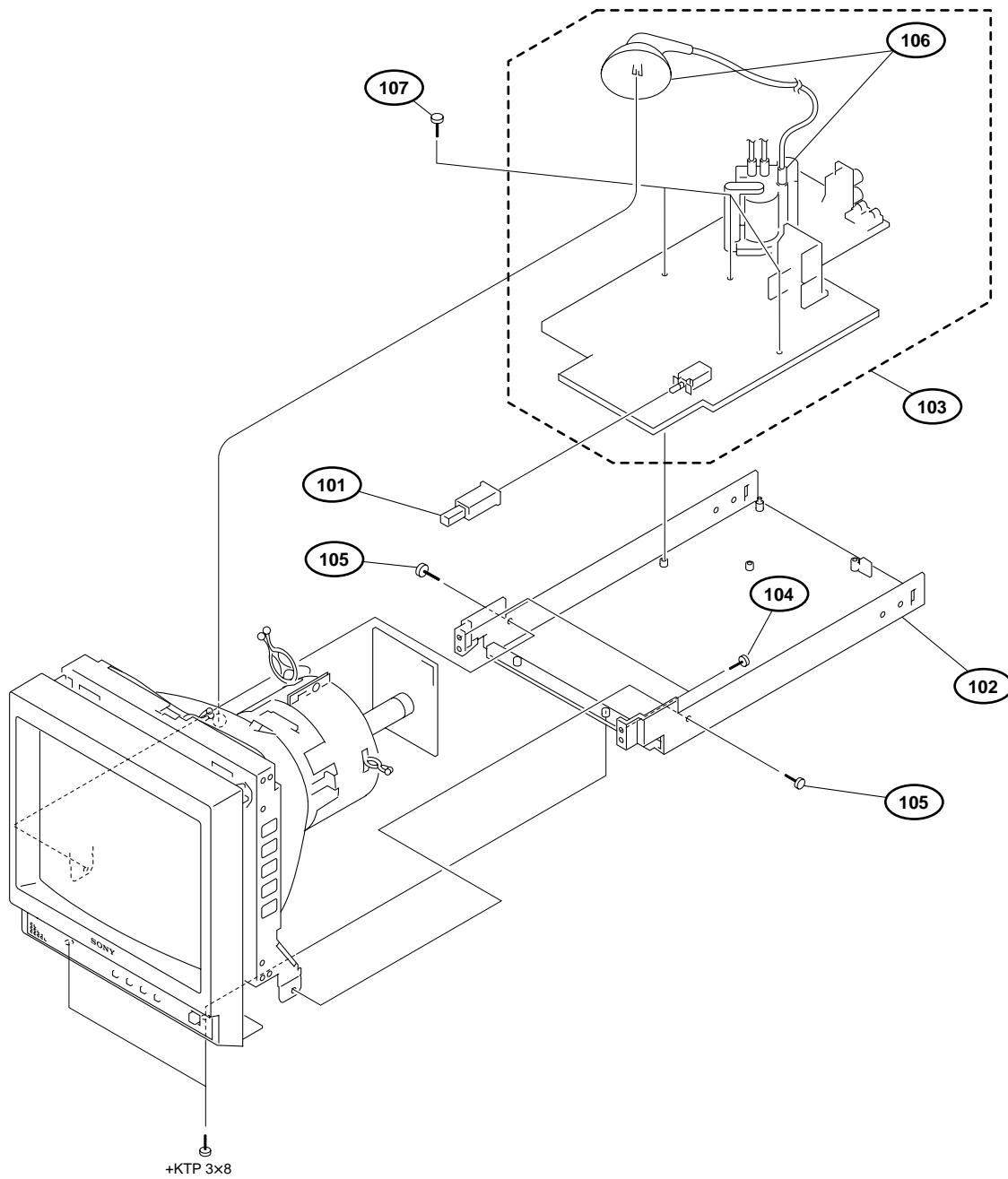
No. Part No. SP Description

- 1 △ 4-096-807-01 s COVER, TOP
- 2 △ 4-096-808-01 s COVER, REAR
- 3 △ 1-251-263-11 s INLET, AC
- 4 A-1302-230-A s MOUNTED CIRCUIT BOARD, G
- 5 4-098-300-02 s SCREW, (+) PSW M 3X10 S TIGHT
- 6 4-847-802-11 s SET SCREW, CASE 4X8 EP-FE/CU, NI
- 7 4-097-991-01 s SCREW +K M 3X6 EG
- 8 4-050-077-02 s SCREW +PSW M 4X8

Screws/Washers

- 7-685-871-09 s SCREW, +BVTT 3X6 (S)(BLACK)
- 7-685-871-01 s SCREW, +BVTT 3X6 (S)
- 7-685-647-29 s SCREW +BVTP 3X10 (EP-FE/ZNBK/CM2)
- 7-685-873-09 s SCREW, +BVTT 3X10 (S)(BLACK)

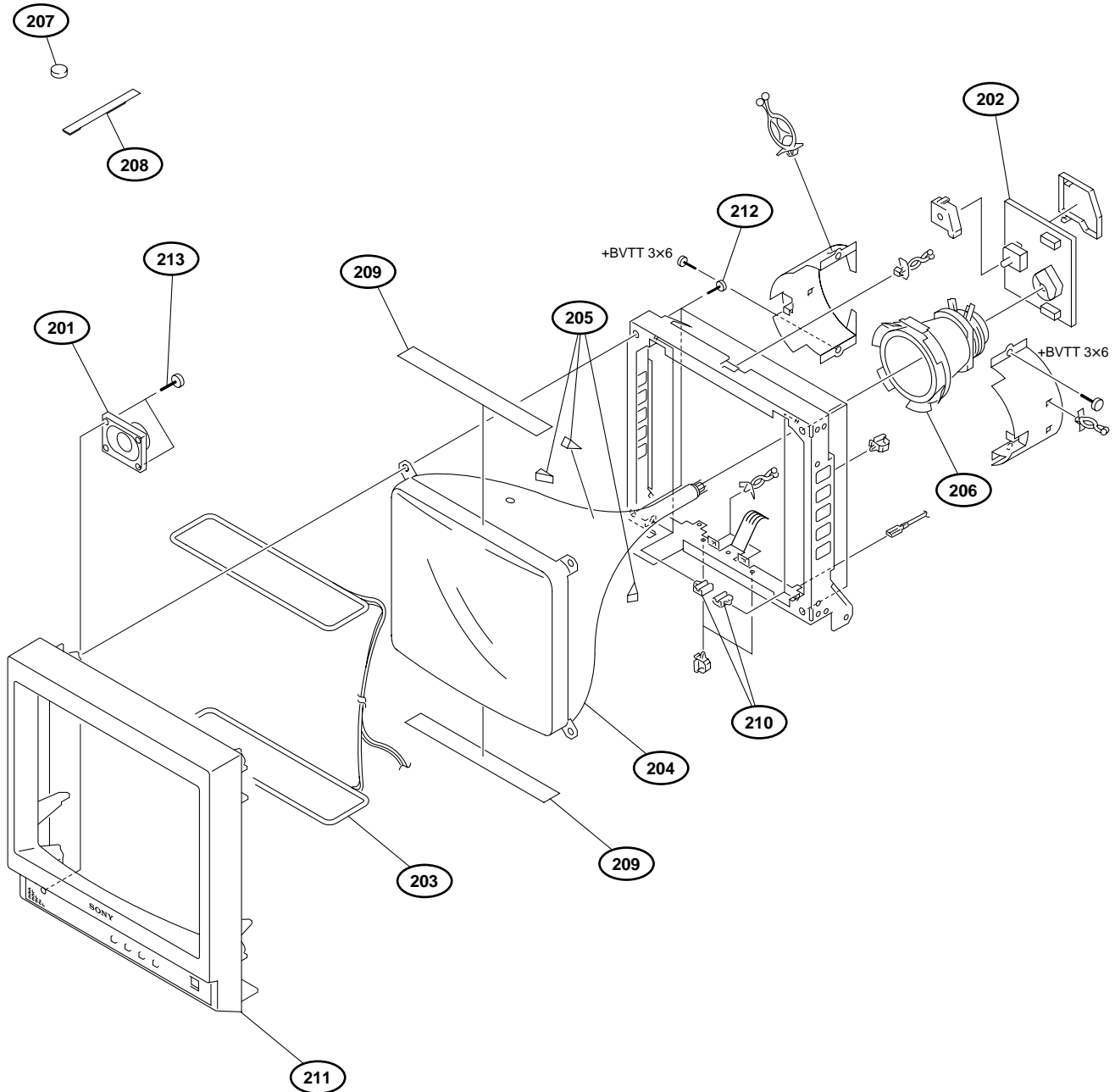




No.	Part No.	SP Description
101	4-096-806-01	s SWITCH, POWER
102	△ 4-096-812-01	s BOTTOM
103	A-1302-231-A	s MOUNTED CIRCUIT BOARD, A
104	4-039-356-21	s SCREW, (+) BVTP 3X12
105	4-097-991-01	s SCREW +K M 3X6 EG
106	△ 1-439-526-31	s TRANSFORMER ASSY, FLYBACK
107	3-703-137-11	s SCREW +PWHTP 3X10

Screws/Washers  
 7-685-246-19 s SCREW +KTP 3X8 (EP-FE/ZNBK/CM2)

# Bezel Complete Assembly



No. Part No. SP Description

- 201 Δ 1-544-796-21 s SPEAKER (4X2.8CM)
- 202 A-1405-333-A s MOUNTED CIRCUIT BOARD, C
- 203 Δ 1-419-306-11 s COIL, DEGAUSS
- 204 Δ 8-737-154-00 s PICTURE TUBE
- 205 4-309-369-00 s SPACER, DEFLECTION YOKE
- 206 Δ 1-451-319-22 s DEFLECTION YOKE (Y9FXC)
- 207 1-452-884-12 o MAGNET
- 208 4-051-735-42 s PIECE A (75), CONV, CORRECT
- 209 4-035-332-01 s CLOTH, PROTECTION
- 210 4-072-725-01 o HOLDER, DEGAUS COIL
- 211 Δ X-4041-936-1 s BEZEL ASSY
- 212 4-203-648-11 s SELFTAPPING SCREW 5
- 213 4-039-356-21 s SCREW, (+) BVTP 3X12

Screws/Washers

- 7-685-871-09 s SCREW +BVTT 3X6

### 5-3. Electrical Parts List

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A BOARD  
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Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1302-231-A	s	MOUNTED CIRCUIT BOARD, A (INCLUDED T501 FBT)
1pc	4-200-407-01	s	HOLDER,IC
5pcs	4-382-854-71	s	SCREW (M3X10), P, SW (+)
11pcs	7-322-065-48	o	RUBBER, SILICONE RTV (KE-3490)
C002	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C003	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C004	1-126-961-11	s	CAPACITOR, ELECT 2.2MF/50V
C005	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C006	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C007	1-126-935-11	s	CAPACITOR,ELECT 470MF/16V
C008	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C009	1-126-933-11	s	CAPACITOR,ELECT 100MF/16V
C010	1-126-947-11	s	CAPACITOR, ELECT 47MF/35V
C011	1-162-964-11	s	CAPACITOR,CERAMIC 1000PF/50V B
C012	1-102-228-00	s	CAPACITOR,CERAMIC;470PF/500V
C013	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C014	1-127-715-11	s	CAPACITOR,CERAMIC 0.22MF B1608
C015	1-164-227-11	s	CAPACITOR,CERAMIC 0.022MF/25V
C016	1-164-227-11	s	CAPACITOR,CERAMIC 0.022MF/25V
C017	1-126-935-11	s	CAPACITOR,ELECT 470MF/16V
C018	1-126-935-11	s	CAPACITOR,ELECT 470MF/16V
C019	1-162-968-11	s	CAPACITOR,CERAMIC 4700PF/50V B
C020	1-164-217-11	s	CAPACITOR,CERAMIC 150PF/50V CH
C021	1-162-968-11	s	CAPACITOR,CERAMIC 4700PF/50V B
C022	1-125-837-91	s	CAPACITOR,CHIP CERAMIC1MF/6.3V
C023	1-125-889-11	s	CAPACITOR, C.CERAMIC 2.2MF
C024	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C025	1-164-227-11	s	CAPACITOR,CERAMIC 0.022MF/25V
C027	1-126-935-11	s	CAPACITOR,ELECT 470MF/16V
C028	1-126-960-11	s	CAPACITOR,ELECT 1MF/50V
C029	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C030	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C031	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C032	1-162-918-11	s	CAPACITOR,CERAMIC 18PF/50V CH
C033	1-162-968-11	s	CAPACITOR,CERAMIC 4700PF/50V B
C034	1-126-933-11	s	CAPACITOR,ELECT 100MF/16V
C035	1-125-889-11	s	CAPACITOR, C.CERAMIC 2.2MF
C036	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C037	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C038	1-162-918-11	s	CAPACITOR,CERAMIC 18PF/50V CH
C039	1-165-176-11	s	CAPACITOR,CERAMIC 47000PF/16V
C040	1-136-164-00	s	CAPACITOR,FILM 0.082MF/50V
C041	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C042	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C043	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C044	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C045	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C046	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C047	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C048	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C049	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C050	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C051	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C052	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C053	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C054	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C055	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B

(A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C056	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C057	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C058	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C059	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C060	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C061	1-125-889-11	s	CAPACITOR, C.CERAMIC 2.2MF
C101	1-126-971-11	s	CAPACITOR ELECT 470MF/50V
C102	1-126-967-11	s	CAPACITOR,ELECT 47MF/50V
C103	1-126-969-11	s	CAPACITOR,ELECT 220MF/50V
C104	1-126-964-11	s	CAPACITOR, ELECT 10MF/50V
C105	1-126-964-11	s	CAPACITOR, ELECT 10MF/50V
C106	1-136-187-11	s	CAPACITOR,FILM 0.047MF/250V
C108	1-126-964-11	s	CAPACITOR, ELECT 10MF/50V
C109	1-107-960-11	s	CAPACITOR,ELECT 4.7MF/250V
C110	1-104-999-11	s	CAPACITOR FILM 0.1MF/200V PETP
C200	1-128-551-11	s	CAPACITOR ELECT 22MF/63V
C201	1-126-947-11	s	CAPACITOR, ELECT 47MF/35V
C202	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C203	1-128-551-11	s	CAPACITOR ELECT 22MF/63V
C204	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C205	1-128-551-11	s	CAPACITOR ELECT 22MF/63V
C206	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C207	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C208	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C209	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C210	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C211	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C212	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C213	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C221	1-126-964-11	s	CAPACITOR, ELECT 10MF/50V
C222	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C223	1-126-964-11	s	CAPACITOR, ELECT 10MF/50V
C224	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C225	1-126-964-11	s	CAPACITOR, ELECT 10MF/50V
C226	1-126-959-11	s	CAPCITOR ELECT 0.47MF/50V
C227	1-109-952-11	s	CAPACITOR ERECT 0.47MF/50V(NP)
C301	1-137-150-11	s	CAPACITOR,FILM 0.01MF/100V(PP)
C302	1-137-150-11	s	CAPACITOR,FILM 0.01MF/100V(PP)
C303	1-125-891-11	s	CAPACITOR CERAMIC 0.47MF/10V
C304	1-165-176-11	s	CAPACITOR,CERAMIC 47000PF/16V
C305	1-126-947-11	s	CAPACITOR, ELECT 47MF/35V
C306	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C307	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C308	1-126-963-11	s	CAPACITOR, ELECT 4.7MF/50V
C309	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C310	1-126-933-11	s	CAPACITOR,ELECT 100MF/16V
C311	1-126-947-11	s	CAPACITOR, ELECT 47MF/35V
C312	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C313	1-126-964-11	s	CAPACITOR, ELECT 10MF/50V
C314	1-126-964-11	s	CAPACITOR, ELECT 10MF/50V
C315	1-126-963-11	s	CAPACITOR, ELECT 4.7MF/50V
C501	1-107-646-11	s	CAPACITOR,ELECT 33MF/200V
C502	1-102-228-00	s	CAPACITOR,CERAMIC;470PF/500V
C503	1-137-353-11	s	CAPACITOR FILM 0.047MF/100V PP
C504	1-102-228-00	s	CAPACITOR,CERAMIC;470PF/500V
C505	1-126-971-11	s	CAPACITOR ELECT 470MF/50V
C509	1-137-545-11	s	CAPACITOR FILM 13000PF/600VH
C510	1-137-544-11	s	CAPACITOR FILM 10000PF/600VH
C512	1-107-385-11	s	CAPACITOR,FILM 0.056/200V PETP

## (A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C513	1-137-150-11	s	CAPACITOR,FILM 0.01MF/100V(PP)
C514	1-106-375-12	s	CAPACITOR FILM 0.022MF/200V
C515	1-165-441-81	s	CAPACITOR, ELECT 33MF/160V
C516	1-102-228-00	s	CAPACITOR,CERAMIC;470PF/500V
C517	1-162-116-00	s	CAPACITOR,CERAMIC 680PF/2KVDC
C518	1-162-116-00	s	CAPACITOR,CERAMIC 680PF/2KVDC
C519	1-137-150-11	s	CAPACITOR,FILM 0.01MF/100V(PP)
C520	1-162-318-11	s	CAPACITOR,CERAMIC 1000PF/500V
C521	1-107-714-11	s	CAPACITOR, ELECT 10MF/50V(BP)
C551	1-100-566-91	s	CAP, CHIP CERAMIC 0.1MF B 1608
C552	1-163-021-91	s	CAPACITOR, CERAMIC 0.01MF/50V
C553	1-117-675-21	s	CAP, PP FILM (S) 2.2MF
C554	1-162-969-11	s	CAPACITOR,CERAMIC 6800PF/25V B
C555	1-126-972-11	s	CAPACITOR,ELECT 1000MF/50V
C556	1-126-943-11	s	CAPACITOR,ELECT 2200MF/25V
C557	1-130-777-00	s	CAPACITOR FILM 0.1MF/100V
C558	1-128-551-11	s	CAPACITOR ELECT 22MF/63V
C559	1-126-968-11	s	CAPACITOR,ELECT 100MF/50V
C561	1-126-968-11	s	CAPACITOR,ELECT 100MF/50V
C562	1-126-947-11	s	CAPACITOR, ELECT 47MF/35V
C563	1-126-935-11	s	CAPACITOR,ELECT 470MF/16V
C564	1-129-767-61	s	CAP, PP FILM 0.068MF
C565	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C566	1-137-194-11	s	CAPACITOR FILM 0.47MF/50V
C567	1-126-933-11	s	CAPACITOR,ELECT 100MF/16V
C568	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C569	1-162-967-11	s	CAPACITOR,CERAMIC 3300PF/50V B
C570	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C571	1-126-933-11	s	CAPACITOR,ELECT 100MF/16V
C572	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C573	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C574	1-126-933-11	s	CAPACITOR,ELECT 100MF/16V
C575	1-107-697-11	s	CAPACITOR ELECT 220MF/16V(BP)
C576	1-126-964-11	s	CAPACITOR, ELECT 10MF/50V
C577	1-125-889-11	s	CAPACITOR, C.CERAMIC 2.2MF
C578	1-126-964-11	s	CAPACITOR, ELECT 10MF/50V
C1503	1-104-665-11	s	CAPACITOR, ELECT 100MF/25V
C1504	1-104-665-11	s	CAPACITOR, ELECT 100MF/25V
C3501	1-107-714-11	s	CAPACITOR, ELECT 10MF/50V(BP)
C3502	1-107-905-11	s	CAPACITOR,ELECT 4.7MF/50V
C3503	1-107-905-11	s	CAPACITOR,ELECT 4.7MF/50V
C3504	1-107-909-11	s	CAPACITOR,ELECT 47MF/50V
C3505	1-162-968-11	s	CAPACITOR,CERAMIC 4700PF/50V B
C3506	1-107-906-11	s	CAPACITOR,ELECT 10MF/50V(105)
C3507	1-165-176-11	s	CAPACITOR,CERAMIC 47000PF/16V
C3508	1-107-884-11	s	CAPACITOR,ELECT 1000MF/16V
C3510	1-128-526-11	s	CAPACITOR,ELECT 100MF/25V
C3511	1-126-964-11	s	CAPACITOR, ELECT 10MF/50V
C3512	1-126-964-11	s	CAPACITOR, ELECT 10MF/50V
C3513	1-125-889-11	s	CAPACITOR, C.CERAMIC 2.2MF
CN001	1-564-508-11	o	PLUG,CONNECTOR (5P)
CN101	△ 1-691-291-11	o	PIN,CONNECTOR(PC BOARD)5P
CN102	1-691-960-11	o	PIN,CONNECTOR (PC BOARD) 3P
CN201	1-817-899-11	s	MODULAR JACK(8P-8C)
CN202	1-537-511-11	s	TERMINAL, S
CN203	1-778-695-11	s	CONNECTOR, S TERMINAL
CN301	1-564-510-11	o	PLUG,CONNECTOR (7P)
CN801	1-508-766-00	o	4P PLUG
CN802	1-564-508-11	o	PLUG,CONNECTOR (5P)

## (A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
CN1501	1-564-509-11	o	PLUG,CONNECTOR (6P)
CN3501	1-816-974-51	o	PLUG, CONNECTOR 3P
D001	8-719-083-58	s	DIODE UDZSTE-173.9B
D002	8-719-083-58	s	DIODE UDZSTE-173.9B
D003	8-719-083-58	s	DIODE UDZSTE-173.9B
D004	8-719-083-58	s	DIODE UDZSTE-173.9B
D005	8-719-046-66	s	LED SLR-56MC3F
D006	8-719-069-56	s	DIODE UDZS-TE17-6.2B
D007	8-719-069-60	s	DIODE UDZS-TE17-9.1B
D008	8-719-069-55	s	DIODE UDZS-TE17-5.6B
D009	8-719-069-60	s	DIODE UDZS-TE17-9.1B
D010	8-719-083-58	s	DIODE UDZSTE-173.9B
D011	8-719-083-58	s	DIODE UDZSTE-173.9B
D012	8-719-073-01	s	DIODE MA111-(K8).S0
D013	8-719-069-56	s	DIODE UDZS-TE17-6.2B
D014	8-719-073-01	s	DIODE MA111-(K8).S0
D016	8-719-069-54	s	DIODE UDZS-TE17-5.1B
D017	8-719-069-54	s	DIODE UDZS-TE17-5.1B
D018	8-719-069-54	s	DIODE UDZS-TE17-5.1B
D019	8-719-069-54	s	DIODE UDZS-TE17-5.1B
D101	8-719-073-01	s	DIODE MA111-(K8).S0
D102	8-719-073-01	s	DIODE MA111-(K8).S0
D201	8-719-069-54	s	DIODE UDZS-TE17-5.1B
D213	8-719-800-76	s	DIODE 1SS226
D214	8-719-069-54	s	DIODE UDZS-TE17-5.1B
D215	8-719-800-76	s	DIODE 1SS226
D216	8-719-800-76	s	DIODE 1SS226
D217	8-719-800-76	s	DIODE 1SS226
D301	8-719-073-01	s	DIODE MA111-(K8).S0
D302	8-719-073-01	s	DIODE MA111-(K8).S0
D501	8-719-302-43	s	DIODE EL1Z (RECTI)
D502	8-719-302-43	s	DIODE EL1Z (RECTI)
D504	8-719-979-85	s	DIODE EGP20G
D505	8-719-302-43	s	DIODE EL1Z (RECTI)
D506	8-719-073-01	s	DIODE MA111-(K8).S0
D507	8-719-073-01	s	DIODE MA111-(K8).S0
D508	8-719-073-01	s	DIODE MA111-(K8).S0
D518	8-719-302-43	s	DIODE EL1Z (RECTI)
D520	8-719-908-03	s	DIODE GP08D
D521	8-719-908-03	s	DIODE GP08D
D551	8-719-800-76	s	DIODE 1SS226
D552	8-719-069-54	s	DIODE UDZS-TE17-5.1B
D553	8-719-073-01	s	DIODE MA111-(K8).S0
D554	6-500-029-01	s	DIODE MM3Z12VST1
D555	8-719-908-03	s	DIODE GP08D
D556	8-719-073-01	s	DIODE MA111-(K8).S0
D557	8-719-069-56	s	DIODE UDZS-TE17-6.2B
D560	8-719-069-56	s	DIODE UDZS-TE17-6.2B
D561	8-719-073-01	s	DIODE MA111-(K8).S0
D562	8-719-069-54	s	DIODE UDZS-TE17-5.1B
IC001	6-803-550-01	s	IC TDA9394H/N1/5/1179.518
IC002	8-759-445-59	s	IC BA033T
IC003	8-759-672-39	s	IC PST573IMT
IC004	8-759-575-72	s	IC M24C08-WMN6T
IC101	8-759-562-43	s	IC TDA6108JF/N1B
IC301	8-759-502-80	s	IC LM358M
IC302	8-759-140-85	s	IC UPCL1093J
IC551	8-759-339-59	s	IC TDA8177

## (A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC552	8-759-502-80	s	IC LM358M
IC553	8-752-053-21	s	IC CXA1211M
IC1501	8-759-450-50	s	IC BA08T
IC3501	6-700-688-01	s	IC AN5278
J201	1-794-822-11	s	CONNECTOR, COAXIAL (BNC TYPE)
J202	1-770-157-21	s	JACK, PIN (2P)
JR1	1-216-295-91	s	CONDUCTOR, CHIP (2012)
JR3	1-216-295-91	s	CONDUCTOR, CHIP (2012)
JR4	1-216-295-91	s	CONDUCTOR, CHIP (2012)
JR5	1-216-295-91	s	CONDUCTOR, CHIP (2012)
JR6	1-216-295-91	s	CONDUCTOR, CHIP (2012)
JR7	1-216-295-91	s	CONDUCTOR, CHIP (2012)
JR8	1-216-295-91	s	CONDUCTOR, CHIP (2012)
JR9	1-216-295-91	s	CONDUCTOR, CHIP (2012)
JR10	1-216-295-91	s	CONDUCTOR, CHIP (2012)
JR11	1-216-295-91	s	CONDUCTOR, CHIP (2012)
JR12	1-216-295-91	s	CONDUCTOR, CHIP (2012)
JR13	1-216-295-91	s	CONDUCTOR, CHIP (2012)
JR14	1-216-295-91	s	CONDUCTOR, CHIP (2012)
JR301	1-216-864-11	s	CONDUCTOR, CHIP (1608)
L001	1-412-533-21	s	MICRO INDUCTOR 47UH
L002	1-412-533-21	s	MICRO INDUCTOR 47UH
L003	1-412-533-21	s	MICRO INDUCTOR 47UH
L101	1-406-661-11	s	COIL CHOKE 22UH
L102	1-406-661-11	s	COIL CHOKE 22UH
L103	1-410-476-11	s	MICRO INDUCTOR 33UH
L501	1-422-613-11	s	COIL,AIR-CORE
L502	1-412-527-11	s	INDUCTOR, MICRO 15UH
L506	1-412-529-11	s	INDUCTOR,MICRO 22UH
L507	1-406-987-21	s	COIL, CHOKE 4.7MMH
L508	1-460-225-11	s	COIL,HORIZONTAL LINEARITY
L551	1-406-980-61	s	COIL, CHOKE 330UH
NL501	1-519-108-99	s	NEON LAMP ASSY
Q001	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q101	8-729-026-49	s	TRANSISTOR 2SA1037AK-T146-R
Q102	8-729-322-37	s	TRANSISTOR 2SJ175
Q103	1-801-806-11	s	TRANSISTOR DTC144EKA
Q201	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q202	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q203	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q206	8-729-026-49	s	TRANSISTOR 2SA1037AK-T146-R
Q221	1-801-806-11	s	TRANSISTOR DTC144EKA
Q222	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q301	1-801-806-11	s	TRANSISTOR DTC144EKA
Q302	1-801-806-11	s	TRANSISTOR DTC144EKA
Q303	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q304	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q501	8-729-048-07	s	TRANSISTOR 2SD2578-CA
Q502	8-729-195-82	s	TRANSISTOR 2SC2958
Q503	8-729-026-49	s	TRANSISTOR 2SA1037AK-T146-R
Q551	8-729-422-33	s	TRANSISTOR 2SD601A-Q-TX
Q552	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q553	8-729-422-33	s	TRANSISTOR 2SD601A-Q-TX
Q554	8-729-026-49	s	TRANSISTOR 2SA1037AK-T146-R
Q558	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q559	1-801-806-11	s	TRANSISTOR DTC144EKA
Q560	1-801-806-11	s	TRANSISTOR DTC144EKA

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Ref. No. or Q'ty	Part No.	SP	Description
Q561	8-729-033-24	s	TRANSISTOR DTC114GKAT146
Q562	8-729-026-49	s	TRANSISTOR 2SA1037AK-T146-R
Q564	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q565	8-729-313-42	s	TRANSISTOR 2SD1134
Q3501	8-729-422-33	s	TRANSISTOR 2SD601A-Q-TX
Q3503	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
R002	1-216-829-11	s	RESISTOR,CHIP 4.7K 1/10W(1608)
R003	1-216-797-11	s	RESISTOR,CHIP 10 1/10W 1608
R004	1-216-797-11	s	RESISTOR,CHIP 10 1/10W 1608
R005	1-216-829-11	s	RESISTOR,CHIP 4.7K 1/10W(1608)
R006	1-216-829-11	s	RESISTOR,CHIP 4.7K 1/10W(1608)
R007	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R008	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R009	1-216-827-11	s	RESISTOR, CHIP 3.3K 1/10W 1608
R010	1-216-827-11	s	RESISTOR, CHIP 3.3K 1/10W 1608
R011	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R012	1-216-829-11	s	RESISTOR,CHIP 4.7K 1/10W(1608)
R013	1-218-861-11	s	RESISTOR,CHIP 3.9K 1/10W(1608)
R014	1-216-797-11	s	RESISTOR,CHIP 10 1/10W 1608
R015	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R016	1-216-829-11	s	RESISTOR,CHIP 4.7K 1/10W(1608)
R017	1-216-861-11	s	RESISTOR,CHIP 2.2M 1/16W 1608
R018	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R020	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R021	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R022	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R023	1-216-835-11	s	RESISTOR,CHIP 15K 1/10W
R024	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R025	1-216-840-11	s	RESISTOR,CHIP 39K 1/10W 1608
R026	1-216-838-11	s	RESISTOR CHIP 27K 1/10W(1608)
R027	1-216-813-11	s	RESISTOR, CHIP 220 1/10W 1608
R028	1-216-820-11	s	RESISTOR, CHIP 820 1/10W 1608
R029	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R030	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R031	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R032	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R033	1-218-847-11	s	RESISTOR, CHIP 1K 1/10W (1608)
R034	1-218-847-11	s	RESISTOR, CHIP 1K 1/10W (1608)
R035	1-218-847-11	s	RESISTOR, CHIP 1K 1/10W (1608)
R036	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R037	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R038	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R039	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R043	1-218-867-11	s	RESISTOR,CHIP 6.8K 1/10W(1608)
R044	1-216-827-11	s	RESISTOR, CHIP 3.3K 1/10W 1608
R045	1-216-835-11	s	RESISTOR,CHIP 15K 1/10W
R046	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R047	1-218-847-11	s	RESISTOR, CHIP 1K 1/10W (1608)
R048	1-218-847-11	s	RESISTOR, CHIP 1K 1/10W (1608)
R049	1-218-847-11	s	RESISTOR, CHIP 1K 1/10W (1608)
R053	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R054	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R055	1-216-815-11	s	RESISTOR,CHIP 330 1/10W 1608
R056	1-216-815-11	s	RESISTOR,CHIP 330 1/10W 1608
R057	1-216-817-11	s	RESISTOR,CHIP 470 1/10W 1608
R058	1-216-817-11	s	RESISTOR,CHIP 470 1/10W 1608
R059	1-216-837-11	s	RESISTOR,CHIP 22K 1/16W 1608
R060	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608

## (A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R061	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R062	1-216-829-11	s	RESISTOR,CHIP 4.7K 1/10W(1608)
R063	1-216-829-11	s	RESISTOR,CHIP 4.7K 1/10W(1608)
R064	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R065	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R101	1-216-824-11	s	RESISTOR, CHIP 1.8K 1/10W 1608
R102	1-216-365-00	s	RESISTOR,METAL FILM 0.47/2W
R103	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R104	1-216-848-11	s	RESISTOR,CHIP 180K 1/16 (1608)
R105	1-216-837-11	s	RESISTOR,CHIP 22K 1/16W 1608
R106	1-216-840-11	s	RESISTOR,CHIP 39K 1/10W 1608
R107	1-216-853-11	s	RESISTOR,CHIP 470K 1/16W(1608)
R108	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R109	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R110	1-216-839-11	s	RESISTOR,CHIP 33K 1/10W 1608
R111	1-249-400-11	s	RES,CARBON 39 1/4W (SMALL)
R121	1-249-409-11	s	RESISTOR,CARBON 220 1/4W SMALL
R122	1-249-409-11	s	RESISTOR,CARBON 220 1/4W SMALL
R123	1-249-409-11	s	RESISTOR,CARBON 220 1/4W SMALL
R201	1-214-837-11	s	RESISTOR,METAL FILM 75,1/2W
R202	1-216-843-11	s	RESISTOR,CHIP 68K 1/10W (1608)
R203	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R204	1-216-842-11	s	RESISTOR,CHIP 56K 1/16W(1608)
R205	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R206	1-216-843-11	s	RESISTOR,CHIP 68K 1/10W (1608)
R207	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R208	1-216-843-11	s	RESISTOR,CHIP 68K 1/10W (1608)
R209	1-216-842-11	s	RESISTOR,CHIP 56K 1/16W(1608)
R210	1-216-842-11	s	RESISTOR,CHIP 56K 1/16W(1608)
R211	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R212	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R213	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R214	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R221	1-218-879-11	s	RESISTOR,CHIP 22K 1/10W (1608)
R222	1-218-887-11	s	RESISTOR,CHIP 47K 1/10W (1608)
R225	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R233	1-216-854-11	s	RESISTOR, CHIP 560K 1/16W 1608
R234	1-216-835-11	s	RESISTOR,CHIP 15K 1/10W
R235	1-214-911-11	s	RESISTOR,METAL FILM 82K/1/2W
R236	1-216-845-11	s	RESISTOR,CHIP 100K 1/10W(1608)
R237	1-216-849-11	s	RESISTOR,CHIP 220K 1/16W 1608
R239	1-216-813-11	s	RESISTOR, CHIP 220 1/10W 1608
R240	1-214-837-11	s	RESISTOR,METAL FILM 75,1/2W
R241	1-214-837-11	s	RESISTOR,METAL FILM 75,1/2W
R242	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R243	1-216-813-11	s	RESISTOR, CHIP 220 1/10W 1608
R244	1-216-813-11	s	RESISTOR, CHIP 220 1/10W 1608
R301	1-218-859-11	s	RESISTOR,CHIP 3.3K 1/10W(1608)
R302	1-218-859-11	s	RESISTOR,CHIP 3.3K 1/10W(1608)
R303	1-218-869-11	s	RESISTOR,CHIP 8.2K 1/10W(1608)
R304	1-218-859-11	s	RESISTOR,CHIP 3.3K 1/10W(1608)
R305	1-218-859-11	s	RESISTOR,CHIP 3.3K 1/10W(1608)
R306	1-218-867-11	s	RESISTOR,CHIP 6.8K 1/10W(1608)
R307	1-218-861-11	s	RESISTOR,CHIP 3.9K 1/10W(1608)
R308	1-218-879-11	s	RESISTOR,CHIP 22K 1/10W (1608)
R309	1-218-883-11	s	RESISTOR,CHIP 33K 1/10W (1608)
R310	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R311	1-218-881-11	s	RESISTOR, CHIP 27K 1/10W(1608)
R312	1-218-889-11	s	RESISTOR,CHIP 56K 1/10W(1608)

## (A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R313	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R314	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R315	1-218-887-11	s	RESISTOR,CHIP 47K 1/10W (1608)
R316	1-218-887-11	s	RESISTOR,CHIP 47K 1/10W (1608)
R317	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R318	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R319	1-218-839-11	s	RESISTOR,CHIP 470 1/10W (1608)
R320	1-218-857-11	s	RESISTOR,CHIP 2.7K 1/10W(1608)
R321	1-218-842-11	s	RESISTOR,CHIP 620 1/10W (1608)
R322	1-218-854-11	s	RESISTOR,CHIP 2K 1/10W (1608)
R323	1-218-859-11	s	RESISTOR,CHIP 3.3K 1/10W(1608)
R325	1-218-863-11	s	RESISTOR,CHIP 4.7K 1/10W(1608)
R326	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R327	1-249-435-11	s	RESISTOR CARBON 33K 1/4W
R328	1-216-436-00	s	RESISTOR,METAL FILM 3.9K/1W
R501	1-249-377-11	s	RES,CARBON 0.47 1/4W
R502	1-249-383-11	s	RES,CARBON 1.5 1/4W
R504	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R505	1-216-425-11	s	RESISTOR,METAL FILM 56/1W
R506	1-215-859-00	s	RESISTOR,METAL 22/1W
R507	1-249-419-11	s	RESISTOR,CARBON 1.5K 1/4W
R508	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R509	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R510	1-249-414-11	s	RESISTOR,CARBON 560 1/4W SMALL
R511	1-249-421-11	s	RESISTOR,CARBON 2.2K 1/4W
R512	1-218-885-11	s	RESISTOR,CHIP 39K 1/10W (1608)
R513	1-218-899-11	s	RESISTOR,CHIP 150K 1/10W(1608)
R514	1-218-873-11	s	RESISTOR,CHIP 12K 1/10W (1608)
R515	1-216-825-11	s	RESISTOR,CHIP 2.2K 1/10W 1608
R516	1-218-880-11	s	RESISTOR,CHIP 24K 1/10W (1608)
R517	1-218-847-11	s	RESISTOR, CHIP 1K 1/10W (1608)
R518	1-218-887-11	s	RESISTOR,CHIP 47K 1/10W (1608)
R519	1-218-859-11	s	RESISTOR,CHIP 3.3K 1/10W(1608)
R520	1-218-861-11	s	RESISTOR,CHIP 3.9K 1/10W(1608)
R521	1-216-837-11	s	RESISTOR,CHIP 22K 1/16W 1608
R522	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R523	1-218-835-11	s	RESISTOR,CHIP 330 1/10W (1608)
R524	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R525	1-218-857-11	s	RESISTOR,CHIP 2.7K 1/10W(1608)
R526	1-218-889-11	s	RESISTOR,CHIP 56K 1/10W(1608)
R527	1-218-907-11	s	RESISTOR,CHIP 330K 1/10W(1608)
R528	1-218-879-11	s	RESISTOR,CHIP 22K 1/10W (1608)
R529	1-218-885-11	s	RESISTOR,CHIP 39K 1/10W (1608)
R551	1-249-390-11	s	RES,CARBON 5.6 1/4W
R552	1-216-430-11	s	RESISTOR,METAL FILM 390/1W
R553	1-216-797-11	s	RESISTOR,CHIP 10 1/10W 1608
R554	1-216-797-11	s	RESISTOR,CHIP 10 1/10W 1608
R555	1-218-867-11	s	RESISTOR,CHIP 6.8K 1/10W(1608)
R556	1-216-436-00	s	RESISTOR,METAL FILM 3.9K/1W
R557	1-216-830-11	s	RESISTOR,CHIP 5.6K 1/10W 1608
R558	1-216-816-11	s	RESISTOR, CHIP 390 1/10W 1608
R559	1-216-825-11	s	RESISTOR,CHIP 2.2K 1/10W 1608
R560	1-216-825-11	s	RESISTOR,CHIP 2.2K 1/10W 1608
R561	1-216-824-11	s	RESISTOR, CHIP 1.8K 1/10W 1608
R562	1-216-835-11	s	RESISTOR,CHIP 15K 1/10W
R563	1-216-829-11	s	RESISTOR,CHIP 4.7K 1/10W(1608)
R565	1-216-830-11	s	RESISTOR,CHIP 5.6K 1/10W 1608
R566	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R567	1-216-823-11	s	RESISTOR, CHIP 1.5K 1/10W

## (A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R568	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R569	1-216-431-11	s	RESISTOR,METAL FILM 560/1W
R570	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R571	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R572	1-249-383-11	s	RES,CARBON 1.5 1/4W
R573	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R574	1-216-832-11	s	RESISTOR,CHIP 8.2K 1/16W 1608
R575	1-216-358-11	s	RESISTOR,METAL FILM 5.6/1W
R576	1-216-815-11	s	RESISTOR,CHIP 330 1/10W 1608
R577	1-216-834-11	s	RESISTOR,CHIP 12K 1/16W 1608
R578	1-216-830-11	s	RESISTOR,CHIP 5.6K 1/10W 1608
R579	1-216-829-11	s	RESISTOR,CHIP 4.7K 1/10W(1608)
R580	1-216-818-11	s	RESISTOR,CHIP 560 1/10W 1608
R581	1-249-421-11	s	RESISTOR,CARBON 2.2K 1/4W
R586	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R587	1-216-827-11	s	RESISTOR,CHIP 3.3K 1/10W 1608
R588	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R589	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R590	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R591	1-216-830-11	s	RESISTOR,CHIP 5.6K 1/10W 1608
R592	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R593	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R594	1-218-849-11	s	RESISTOR,CHIP 1.2K 1/10W(1608)
R595	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R596	1-216-837-11	s	RESISTOR,CHIP 22K 1/16W 1608
R597	1-216-837-11	s	RESISTOR,CHIP 22K 1/16W 1608
R598	1-216-834-11	s	RESISTOR,CHIP 12K 1/16W 1608
R599	1-216-825-11	s	RESISTOR,CHIP 2.2K 1/10W 1608
R1503	1-249-377-11	s	RES,CARBON 0.47 1/4W
R3501	1-216-829-11	s	RESISTOR,CHIP 4.7K 1/10W(1608)
R3502	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R3503	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R3504	1-216-842-11	s	RESISTOR,CHIP 56K 1/16W(1608)
R3506	1-218-866-11	s	RESISTOR,CHIP 6.2K 1/10W(1608)
R3507	1-216-834-11	s	RESISTOR,CHIP 12K 1/16W 1608
R3508	1-216-829-11	s	RESISTOR,CHIP 4.7K 1/10W(1608)
R3509	1-202-973-61	s	RESISTOR, FUSE 3.3 1/4W
R3510	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R3512	1-216-813-11	s	RESISTOR,CHIP 220 1/10W 1608
R3513	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R3514	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
S001	1-571-532-21	s	SWITCH,TACTILE
S002	1-571-532-21	s	SWITCH,TACTILE
S003	1-571-532-21	s	SWITCH,TACTILE
S004	1-571-532-21	s	SWITCH,TACTILE
S101	△ 1-571-433-21	s	SWITCH, PUSH (AC POWER)
S501	1-572-707-11	s	SWITCH,LEVER
T501	△ 1-439-526-31	s	TRANSFORMER ASSY, FLYBACK
T502	1-426-668-11	s	TRANSFORMER, FERRITE (HDT)
THP101	△ 1-803-744-11	s	THERMISTOR, POSITIVE
THP102	1-809-827-11	s	THERMISTOR,POSITIVE
VDR101	1-810-622-11	s	VARISTOR
X001	1-578-774-11	s	VIBRATOR, CRYSTAL

## C BOARD

Ref. No. or Q'ty	Part No.	SP	Description
lpc	A-1405-333-A	s	MOUNTED CIRCUIT BOARD, C
C701	1-104-574-11	s	CAPACITOR,CERAMIC 4700PF/2KDC
C704	1-162-116-00	s	CAPACITOR,CERAMIC 680PF/2KVDC
CN701	1-564-522-11	o	PLUG,CONNECTOR (7P)(L-TYPE)
CN702	1-508-784-00	o	1P PLUG
CN703	1-564-508-11	o	PLUG,CONNECTOR (5P)
D704	8-719-901-83	s	DIODE 1SS83
D705	8-719-901-83	s	DIODE 1SS83
D706	8-719-901-83	s	DIODE 1SS83
J701	1-251-244-11	s	SOCKET,CRT
L701	1-410-668-11	s	MICRO INDUCTOR
R701	1-219-747-11	s	RESISTOR (SURGE RESISTANT)2.2K
R702	1-219-747-11	s	RESISTOR (SURGE RESISTANT)2.2K
R703	1-219-747-11	s	RESISTOR (SURGE RESISTANT)2.2K
R704	1-219-752-11	s	RESISTOR 100K1/2W (SURGE)
R706	1-219-753-11	s	RESISTOR(SURGE RESISTANT) 220K
R707	1-219-752-11	s	RESISTOR 100K1/2W (SURGE)
R711	1-249-409-11	s	RESISTOR,CARBON 220 1/4W SMALL
R712	1-249-409-11	s	RESISTOR,CARBON 220 1/4W SMALL
R713	1-249-409-11	s	RESISTOR,CARBON 220 1/4W SMALL
RV701	1-230-164-00	s	RESISTOR,ADJ,METAL GLAZE 55M

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G BOARD  
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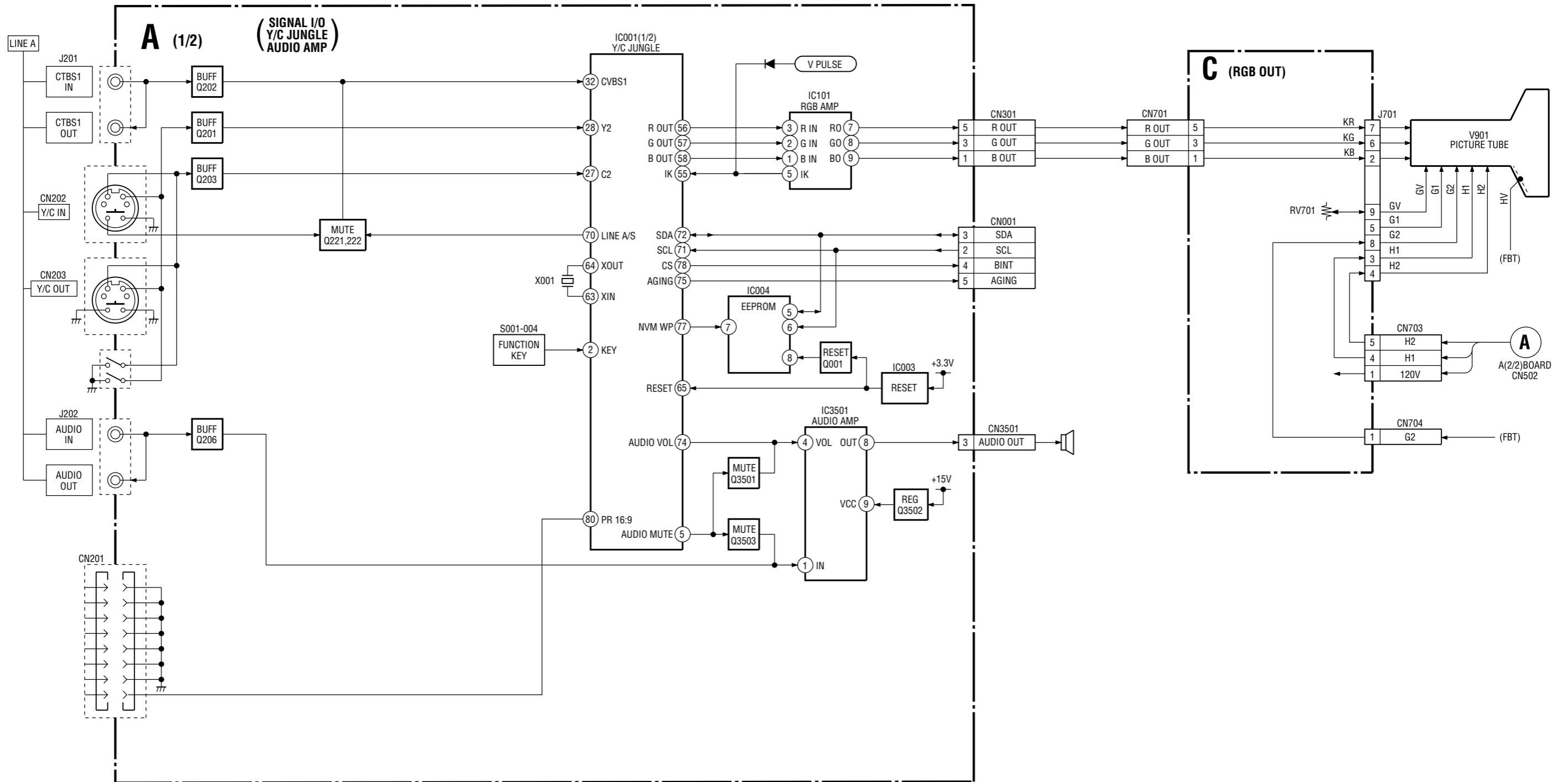
Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1302-230-A	s MOUNTED CIRCUIT BOARD, G
1pc	4-382-854-71	s SCREW (M3X10), P, SW (+)
2pcs	7-322-065-48	o RUBBER, SILICONE RTV (KE-3490)
25pcs	7-632-397-71	TUBE, SILICON RUBBER (16.0)
C601	△ 1-165-437-11	s CAPACITOR,PP FILM 0.22MF
C602	△ 1-165-437-11	s CAPACITOR,PP FILM 0.22MF
C603	△ 1-113-912-11	s CAPACITOR,CERAMIC 0.0047MF/250V
C605	△ 1-113-912-11	s CAPACITOR,CERAMIC 0.0047MF/250V
C607	△ 1-165-437-11	s CAPACITOR,PP FILM 0.22MF
C608	△ 1-113-907-51	s CAPACITOR, CERAMIC 2200PF/250V
C609	△ 1-113-907-51	s CAPACITOR, CERAMIC 2200PF/250V
C612	△ 1-113-608-11	s CAPACITOR,ELECT 470MF/400V
C618	1-117-626-11	s CAPACITOR FILM 2000PF/1600DC
C619	1-107-444-11	s CAPACITOR,CERAMIC 100PF/2KVDC
C620	1-128-526-11	s CAPACITOR,ELECT 100MF/25V
C621	1-131-984-91	s CAP,HIGH-VOLTAGE CERAMIC 330PF
C622	1-162-962-11	s CAPACITOR,CERAMIC 470PF/50V(B)
C623	1-130-471-00	s CAPACITOR FILM 0.001MF/50V PET
C650	△ 1-113-903-11	s CAPACITOR,CERAMIC 0.001MF/250V
C651	1-106-220-00	s CAPACITOR,MYLAR:0.1MF/100V
C655	1-128-560-11	s CAPACITOR, ELECT 22MF/100V
C656	1-107-937-51	s CAP, ELECT 1000MF
C658	1-128-339-11	s CAPACITOR,ELECT 2200MF/16V
C663	1-126-934-11	s CAPACITOR,ELECT 220MF/16V
CN601	△ 1-580-843-11	o PIN,CONNECTOR(POWER)
CN602	△ 1-691-291-11	o PIN,CONNECTOR(PC BOARD)5P
CN604	1-564-509-11	o PLUG,CONNECTOR (6P)
CN605	1-900-277-96	EARTH CABLE CONNECTOR ASSY
D601	△ 8-719-510-53	s DIODE D4SB60L
D609	8-719-510-02	s DIODE D1NS4
D610	8-719-063-70	s DIODE D1NL20U
D611	8-719-063-70	s DIODE D1NL20U
D612	8-719-063-70	s DIODE D1NL20U
D613	8-719-311-31	s DIODE RU-1P
D616	8-719-058-38	s DIODE FMN-G12S
D618	8-719-064-47	s DIODE RN1Z-LF-B1
F601	△ 1-576-231-11	s FUSE(H.B.C)
FB601	1-412-911-11	s INDUCTOR,FERRITE BEAD
FB603	1-412-911-11	s INDUCTOR,FERRITE BEAD
FB605	1-412-911-11	s INDUCTOR,FERRITE BEAD
FH601	1-533-223-11	s CLIP,FUSE
FH602	1-533-223-11	s CLIP,FUSE
IC601	8-749-016-43	s IC STR-F6653-LF1351
IC651	8-749-019-49	s IC SE040
L602	1-412-529-11	s INDUCTOR,MICRO 22UH
L603	1-412-529-11	s INDUCTOR,MICRO 22UH
PH601	△ 8-749-016-81	s PHOTO COUPLER PC123Y22
R601	△ 1-219-759-11	s RESISTOR (SURGE RESISTANT) 1M
R602	△ 1-219-769-11	s RESISTOR (SURGE) 3.3M/1/2W
R603	△ 1-219-769-11	s RESISTOR (SURGE) 3.3M/1/2W
R604	1-220-820-31	s RESISTOR, CEMENT 1.5/10W
R605	1-220-820-31	s RESISTOR, CEMENT 1.5/10W
R620	1-202-933-61	s RESISTOR, FUSE 0.1 1/2W
R621	1-215-926-00	s RESISTOR,METAL FILM 33K/3W
R622	1-215-926-00	s RESISTOR,METAL FILM 33K/3W

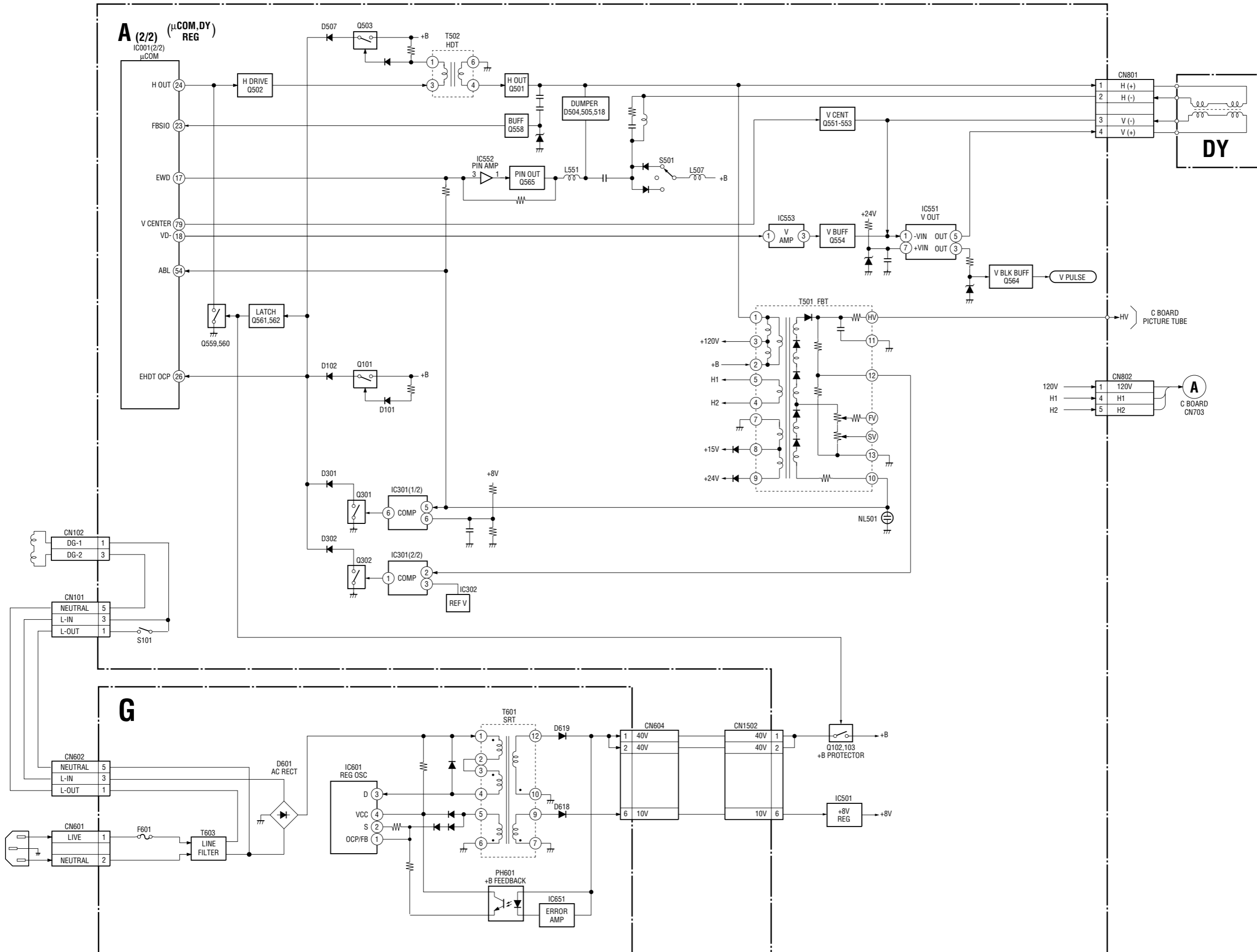
(G BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R623	1-215-926-00	s RESISTOR,METAL FILM 33K/3W
R624	1-249-426-11	s RES,CARBON 5.6K 1/4W (SMALL)
R625	1-216-367-11	s RESISTOR,METAL FILM 0.68/2W
R626	1-216-367-11	s RESISTOR,METAL FILM 0.68/2W
R627	1-218-843-11	s RESISTOR,CHIP 680 1/10W (1608)
R629	1-218-856-11	s RESISTOR,CHIP 2.4K 1/10W(1608)
R630	1-249-393-11	s RES,CARBON 10 1/4W
R631	1-215-929-11	s RESISTOR,METAL FILM 100K/3W
R651	1-218-853-11	s RESISTOR,CHIP 1.8K 1/10W(1608)
R652	1-216-821-11	s RESISTOR,CHIP 1.0K 1/10W(1608)
R653	1-216-461-00	s RESISTOR,METAL FILM 5.6K/2W
R654	1-249-377-11	s RES,CARBON 0.47 1/4W
T601	△ 1-443-023-11	s CONVERTER TORANSFORMER (SRT)
T603	△ 1-429-180-11	s TRANSFORMER, LINE FILTER
VDR601	△ 1-804-995-21	s VARISTOR
----- ACCESSORIES -----		
Ref. No. or Q'ty	Part No.	SP Description
1pc	△ 1-534-754-00	s POWER CORD 7A/120V
1pc	4-096-626-01	s MANUAL, INSTRUCTION (JAPANESE, ENGLISH, FRENCH, GERMAN, ITALIAN, SPANISH, SIMPLIFIED CHINESE)






### Section 6 Block Diagrams






## Section 7 Diagrams

### Note:





- Parts marked “ \* ” differ according to the model/destination. Refer to the mount table for each function.
- The parts marked “ # ” on schematic diagrams are not mounted.
- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$ :  $\mu\mu\text{F}$  50WV or less are not indicated except for electrolytics.
- All electrolytics are in 50 V unless otherwise specified.
-  : fusible resistor
-  : nonflammable resistor
- $\Delta$  : internal component
-  : panel designation and adjustment for repair
- Caution when replacing chip parts  
New parts must be attached after removal of the chip.  
Be careful not to heat the minus side of a tantalum capacitor, because it is easily damaged by the heat.

### Reference information

RESISTOR	RN	: METAL FILM
	RC	: SOLID
	FPRD	: NONFLAMMABLE CARBON
	FUSE	: NONFLAMMABLE FUSIBLE
	RS	: NONFLAMMABLE METAL OXIDE
	RB	: NONFLAMMABLE CEMENT
	RW	: NONFLAMMABLE WIREWOUND
	※	: ADJUSTMENT RESISTOR
COIL	LF-8L	: MICRO INDUCTOR
CAPACITOR	TA	: TANTALUM
	PS	: STYROL
	PP	: POLYPROPYLENE
	PT	: MYLAR
	MPS	: METALIZED POLYESTER
	MPP	: METALIZED POLYPROPYLENE
	ALB	: BIPOLAR
	ALT	: HIGH TEMPERATURE
	ALR	: HIGH RIPPLE

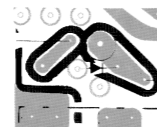
- When replacing components marked  , make the necessary adjustments indicated.

### [Measuring conditions, voltage and waveform]

- A voltage value is the reference value between the measurement point and the earth, when the NTSC color bar signal (100%) is received from the color bar generator. (digital multi-meter used: 10 M ohms/V DC)
- Unit of voltage is V (volt).  
(Voltage variations may occur due to normal production tolerances.)
-  : B+line
-  : B- line
- No mark : NTSC (3.58 MHz) color bar signal.
-  : Measurement disabled.
-  : Signal path.

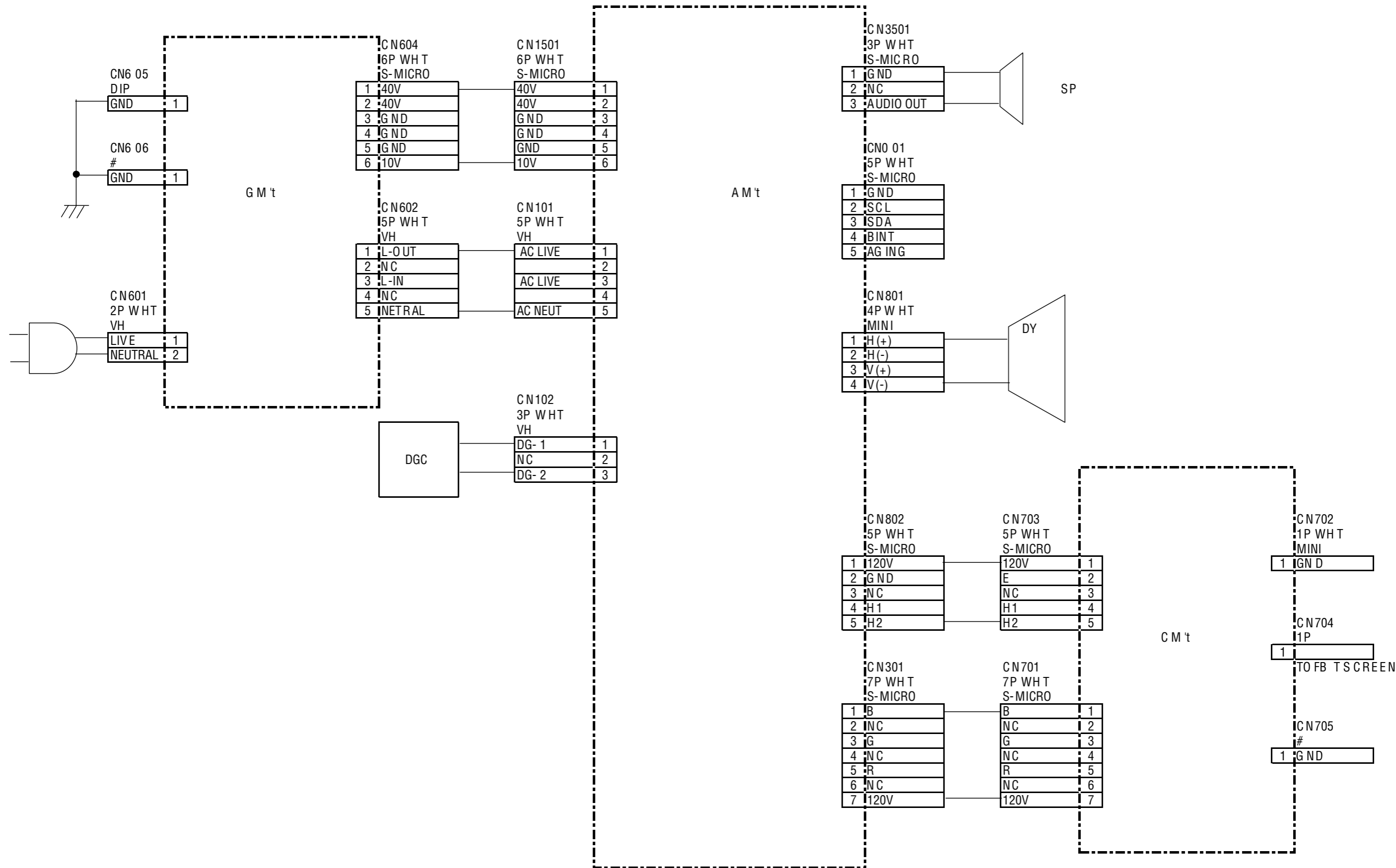
The components identified marked  $\Delta$  are critical for safety.  
Replace only with the part number specified.

Les composants identifiés par la marque  $\Delta$  sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié.



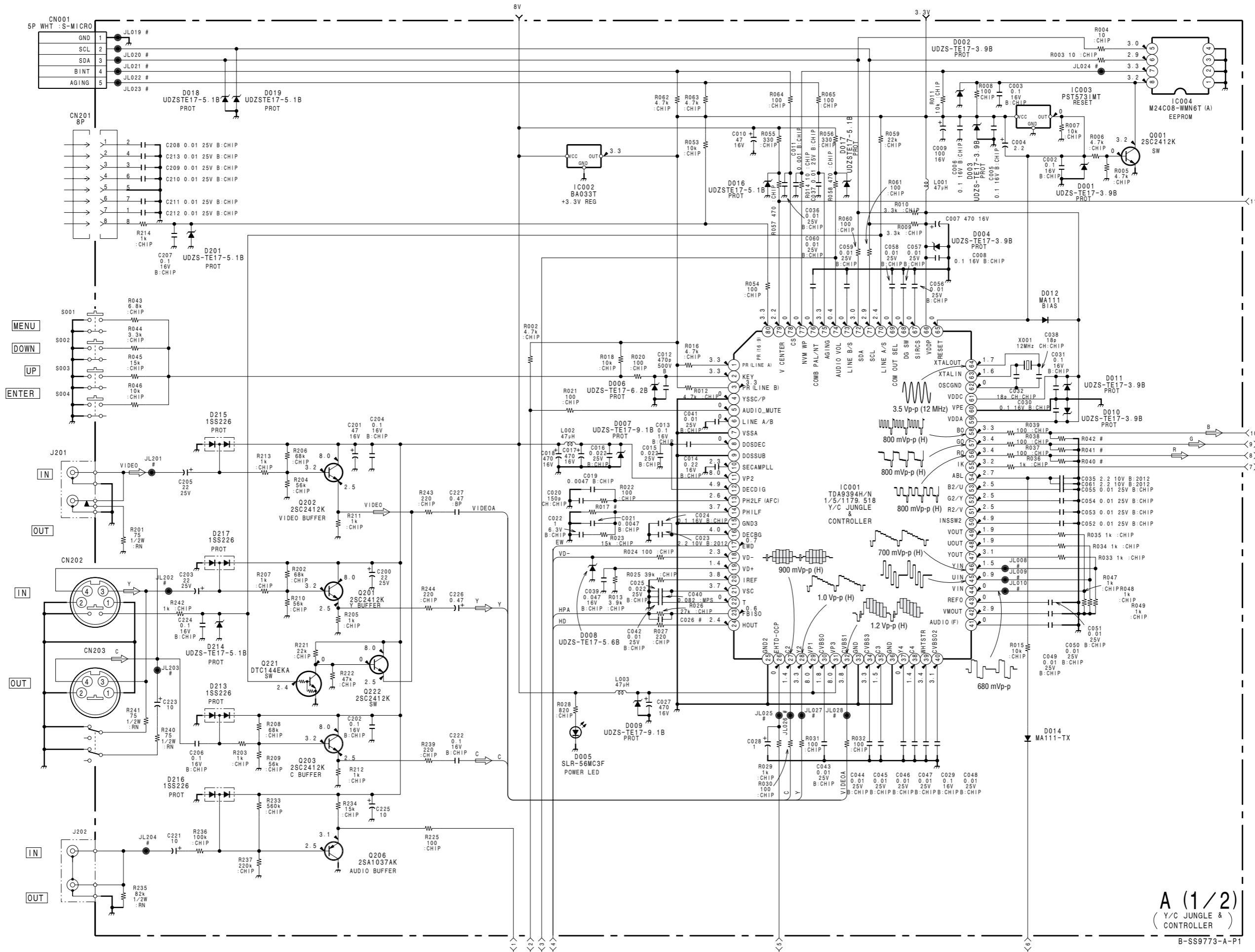
**NOTE:**  
The circuit indicated as shown on the left contains high voltages of over 600 Vp-p. Take care to avoid electric shock during inspection or repair work.

7-1. Frame Wiring



7-2. Schematic Diagrams and Board Layouts

A (1/2) A (1/2)



A (1/2)  
Y/C JUNGLE &  
CONTROLLER

B-SS9773-A-P1

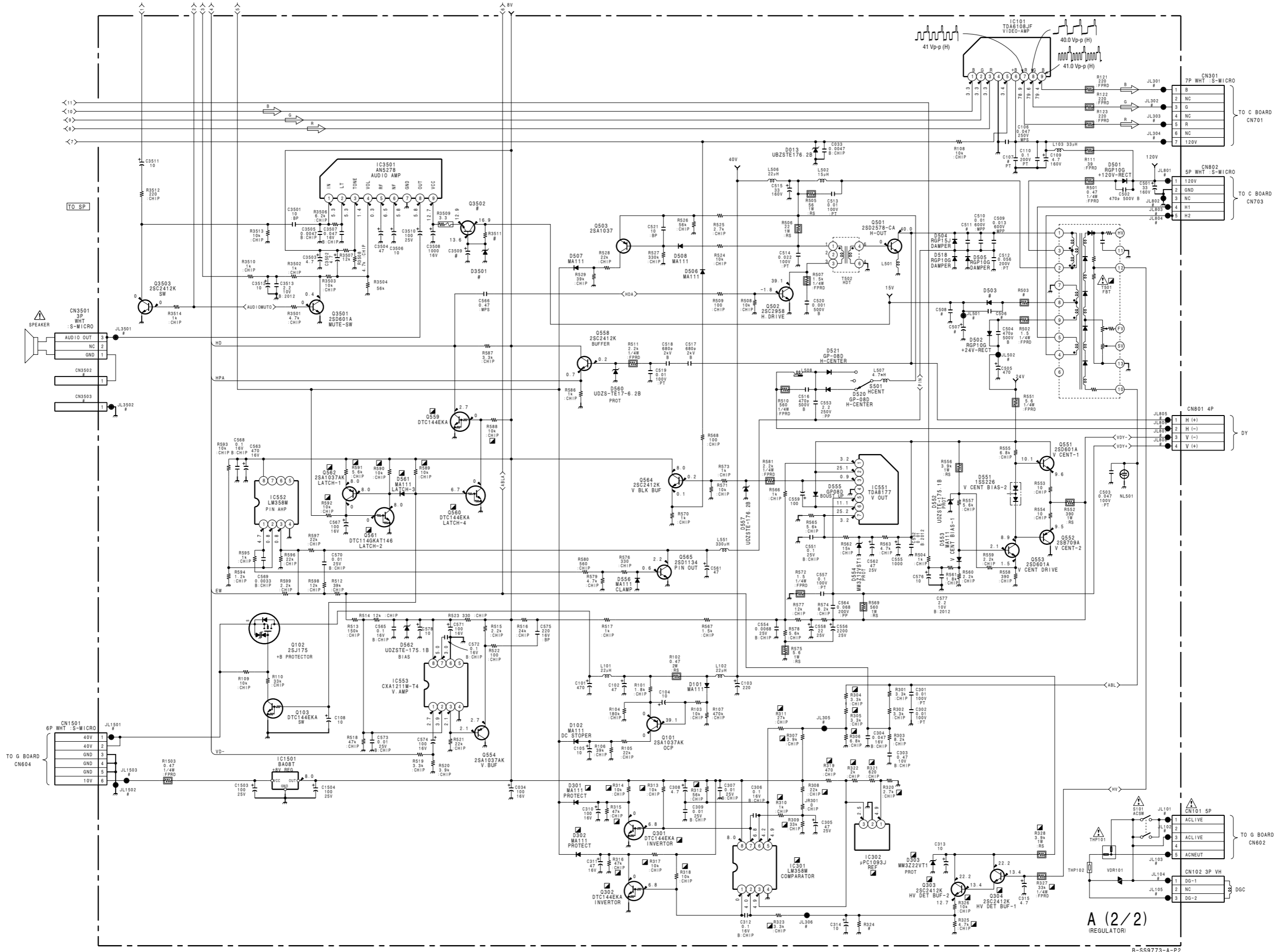
1

2

3

4

5



A (2/2)  
(REGULATOR)

B-SS9773-A-P2

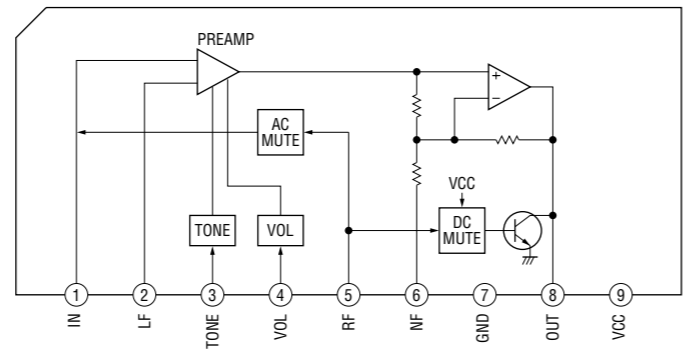
7-4

7-4

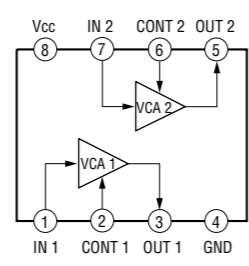
PVM-9L1

A B C D E F G H

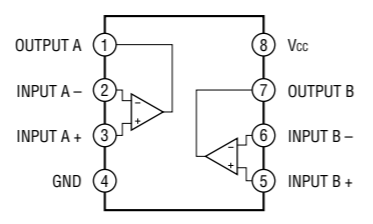
A (2/2) AN5278 (IC3501)



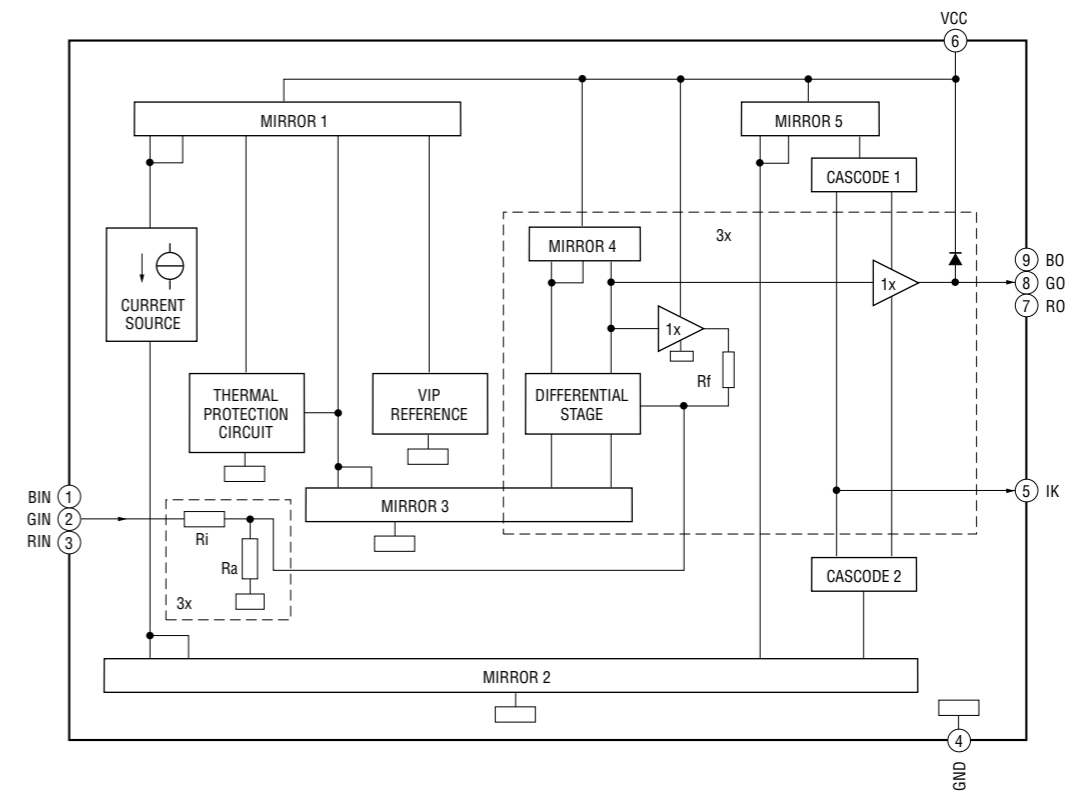
A (2/2) CXA1211M-T4 (IC553)



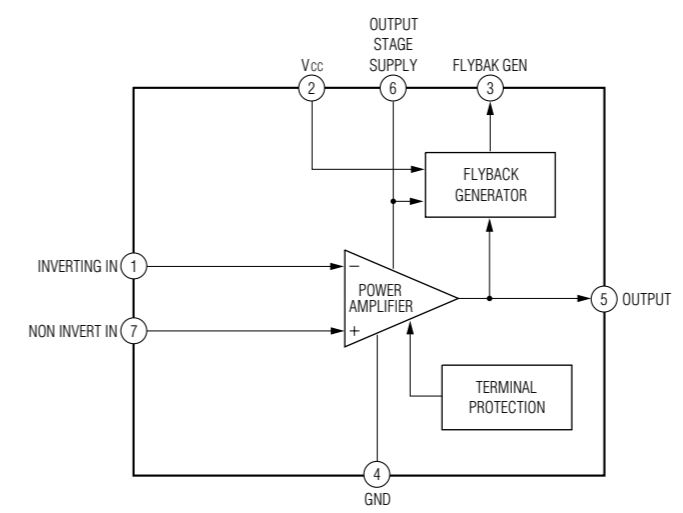
A (2/2) LM358M (IC301, IC552)

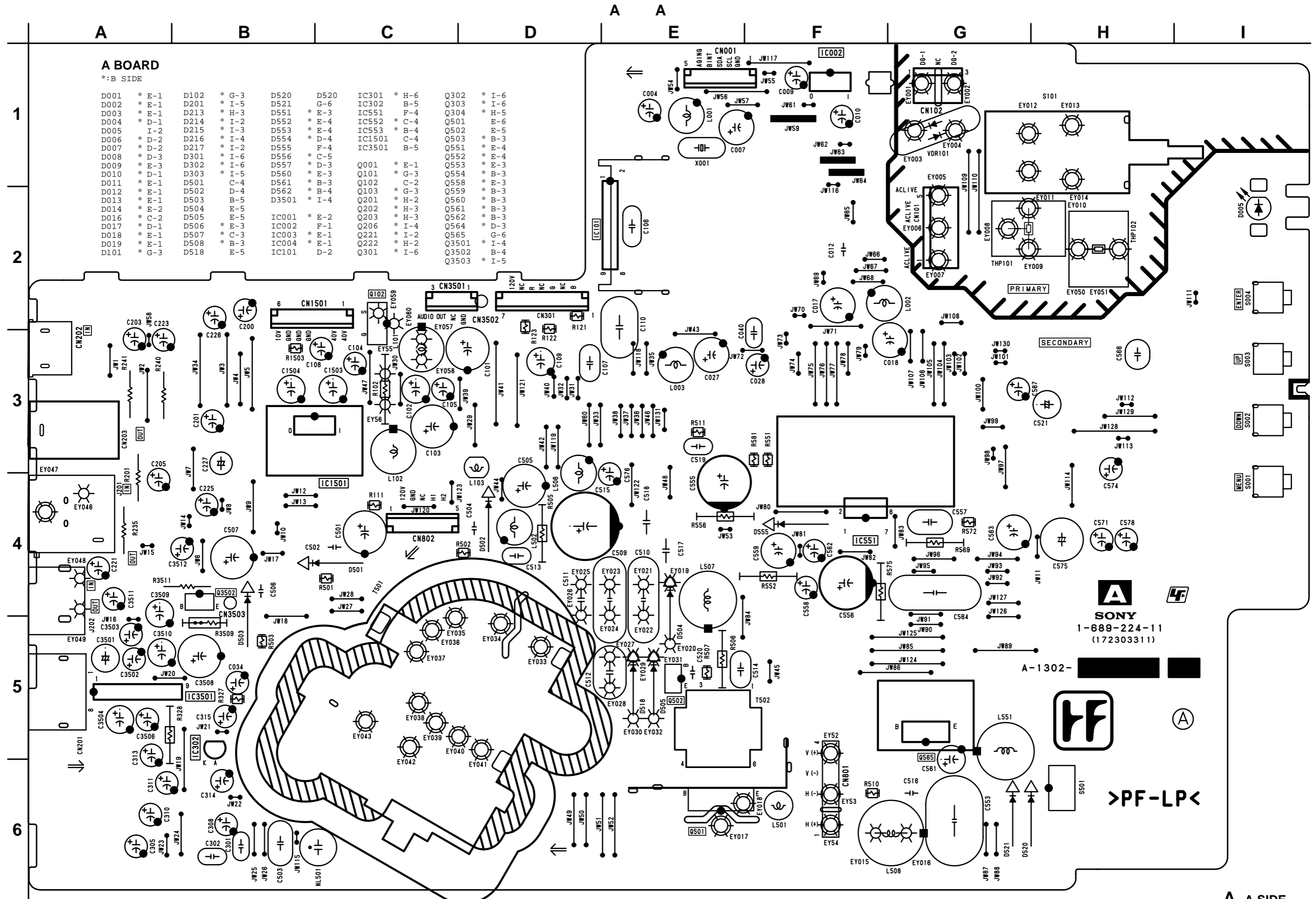


A (2/2) TDA6108JF (IC101)



A (2/2) TDA8177 (IC551)





**A BOARD**

\*:B SIDE

D001	* E-1	D102	* G-3	D520	D520	IC301	* H-6	Q302	* I-6
D002	* E-1	D201	* I-5	D521	G-6	IC302	B-5	Q303	* I-6
D003	* E-1	D213	* H-3	D551	* E-3	IC551	F-4	Q304	* H-5
D004	* D-1	D214	* I-2	D552	* E-4	IC552	* C-4	Q501	* E-6
D005	* I-2	D215	* I-3	D553	* E-4	IC553	* E-4	Q502	* E-5
D006	* D-2	D216	* I-4	D554	* D-4	IC1501	C-4	Q503	* B-3
D007	* D-2	D217	* I-2	D555	* F-4	IC3501	B-5	Q551	* E-4
D008	* D-3	D301	* I-6	D556	* C-5			Q552	* E-4
D009	* E-3	D302	* I-6	D557	* D-3	Q001	* E-1	Q553	* E-3
D010	* D-1	D303	* I-5	D560	* E-3	Q101	* G-3	Q554	* E-3
D011	* E-1	D501	* C-4	D561	* B-3	Q102	* C-2	Q558	* E-3
D012	* E-1	D502	* D-4	D562	* E-4	Q103	* G-3	Q559	* E-3
D013	* E-1	D503	* B-5	D3501	* I-4	Q201	* H-2	Q560	* B-3
D014	* E-2	D504	* E-5			Q202	* H-3	Q561	* B-3
D016	* C-2	D505	* E-5	IC001	* E-2	Q203	* H-3	Q562	* B-3
D017	* D-1	D506	* E-3	IC002	* F-1	Q206	* I-4	Q564	* D-3
D018	* E-1	D507	* C-3	IC003	* E-1	Q221	* I-2	Q565	* G-6
D019	* E-1	D508	* E-3	IC004	* E-1	Q222	* H-2	Q3501	* I-4
D101	* G-3	D518	* E-5	IC101	* D-2	Q301	* I-6	Q3502	* B-4
								Q3503	* I-5

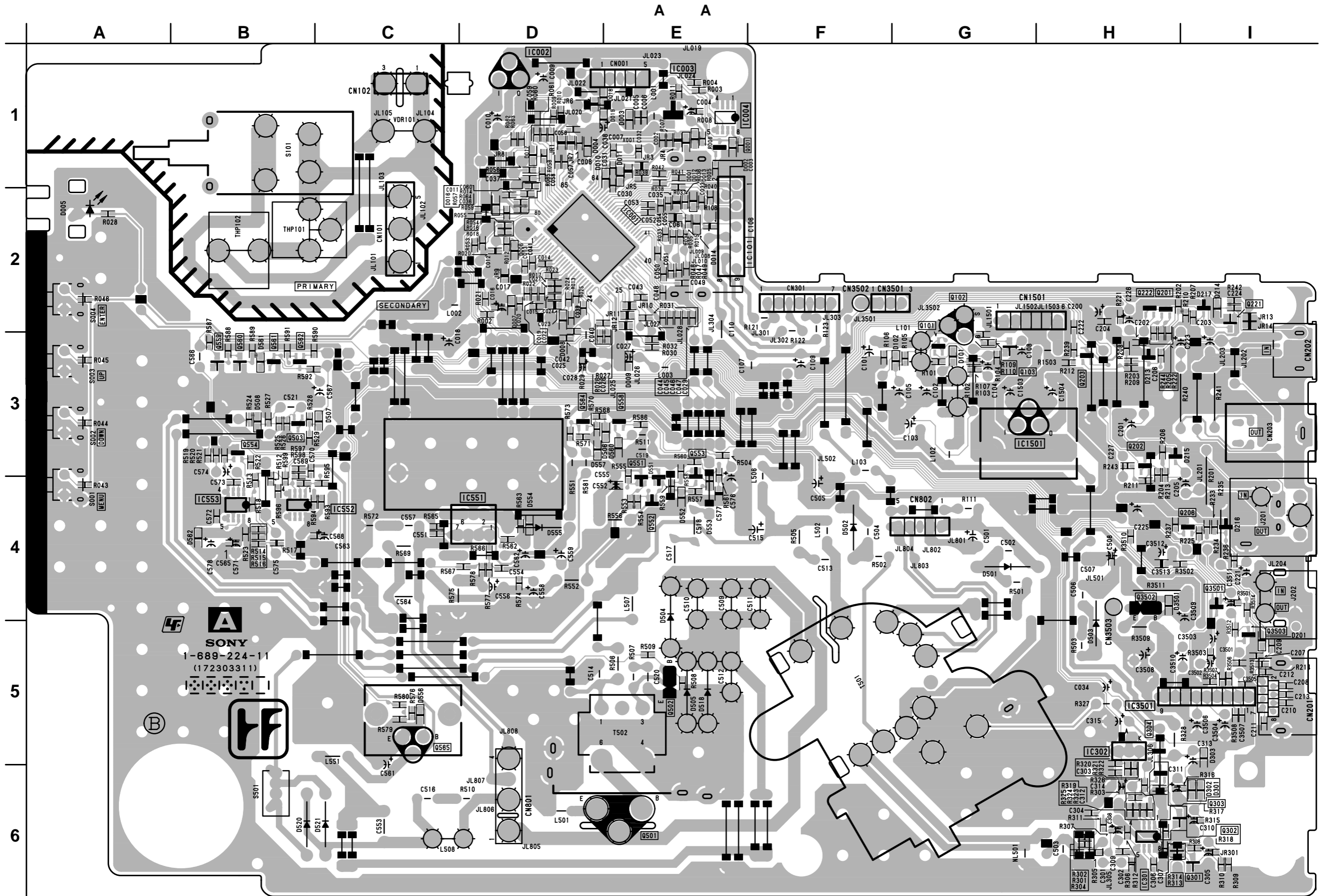
**SONY**  
1-889-224-11  
(17230311)



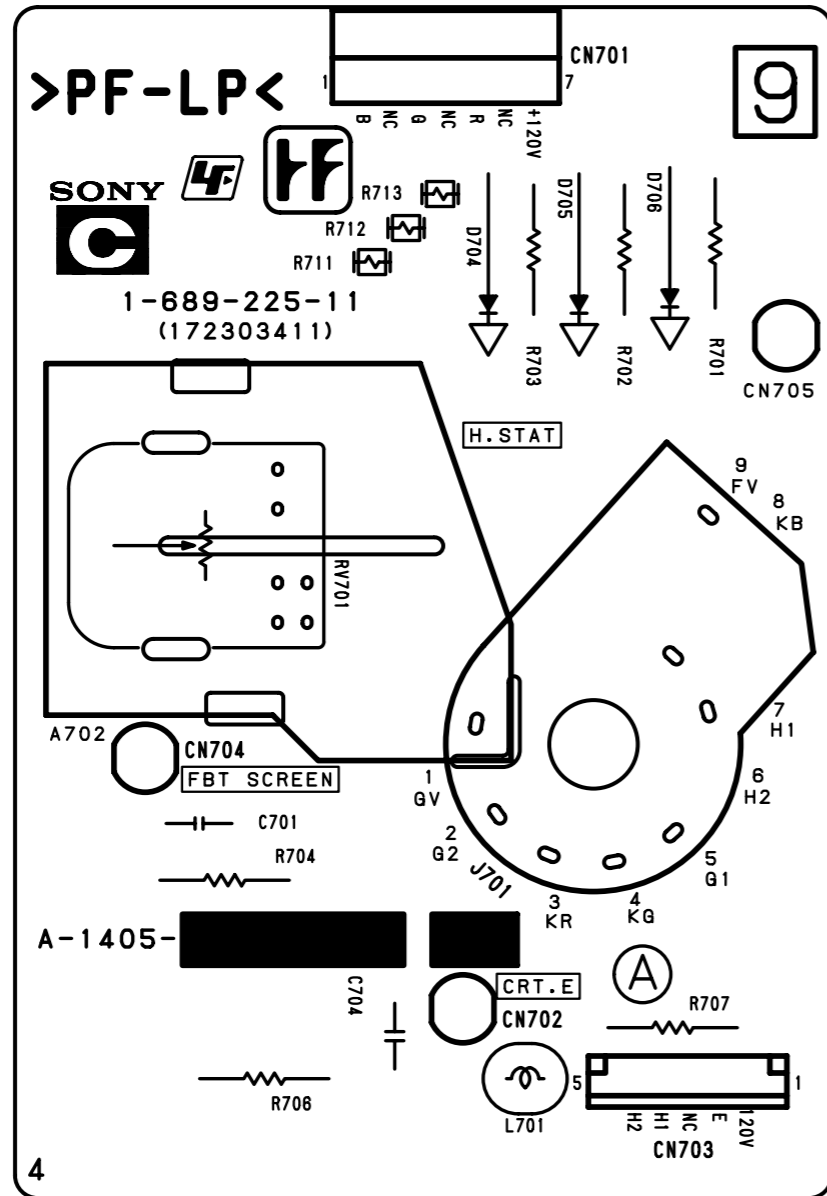
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**A -A SIDE-**  
SUFFIX: -11

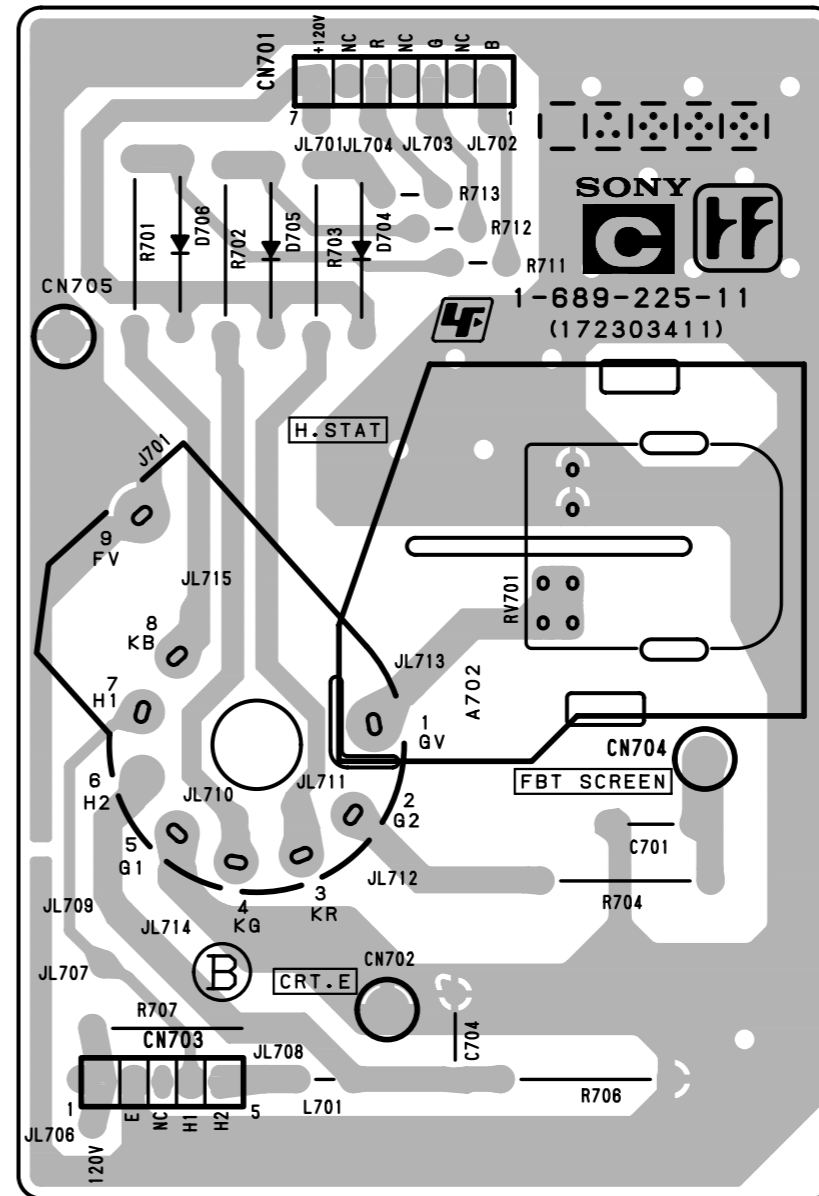




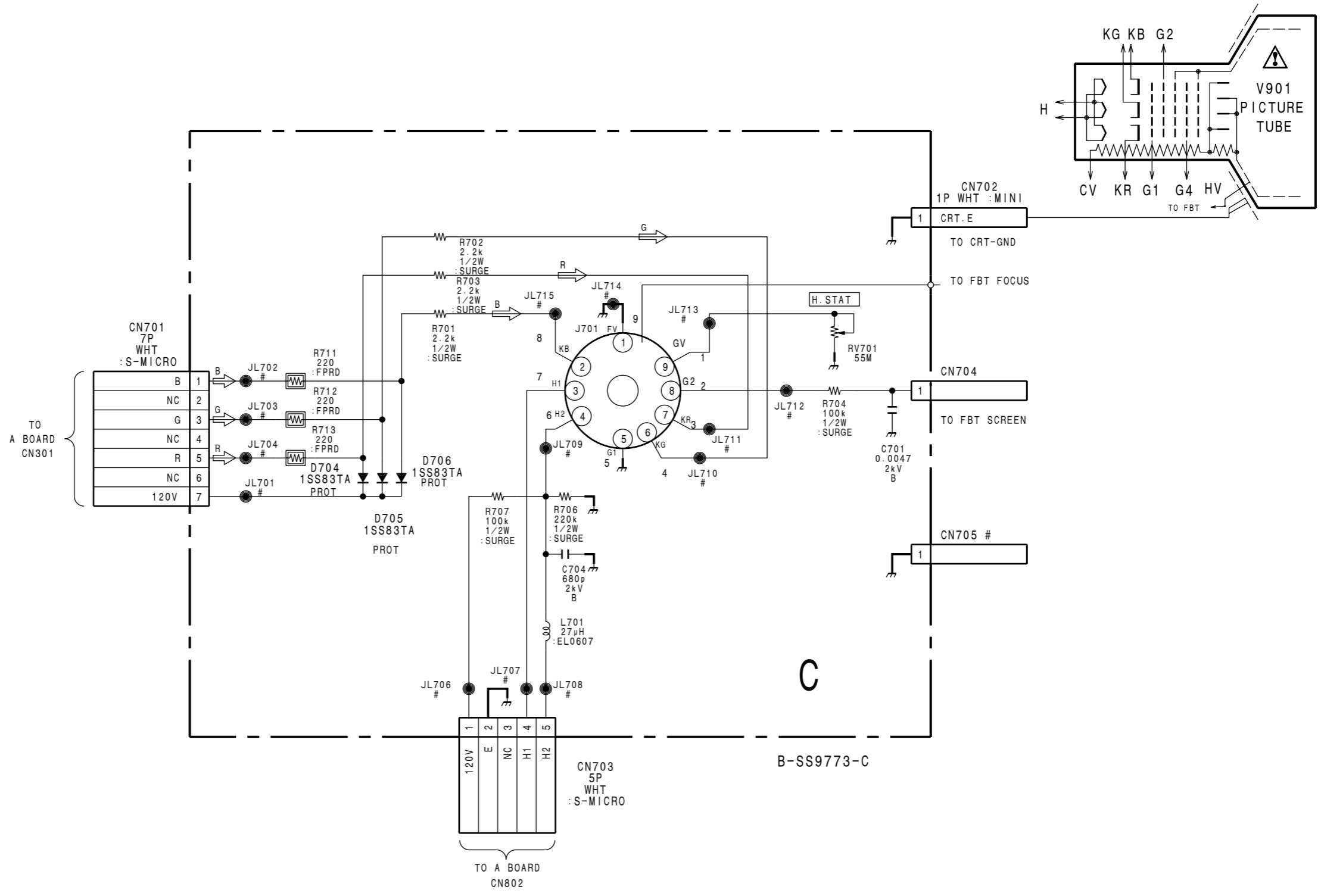
A - B SIDE -  
SUFFIX: -11



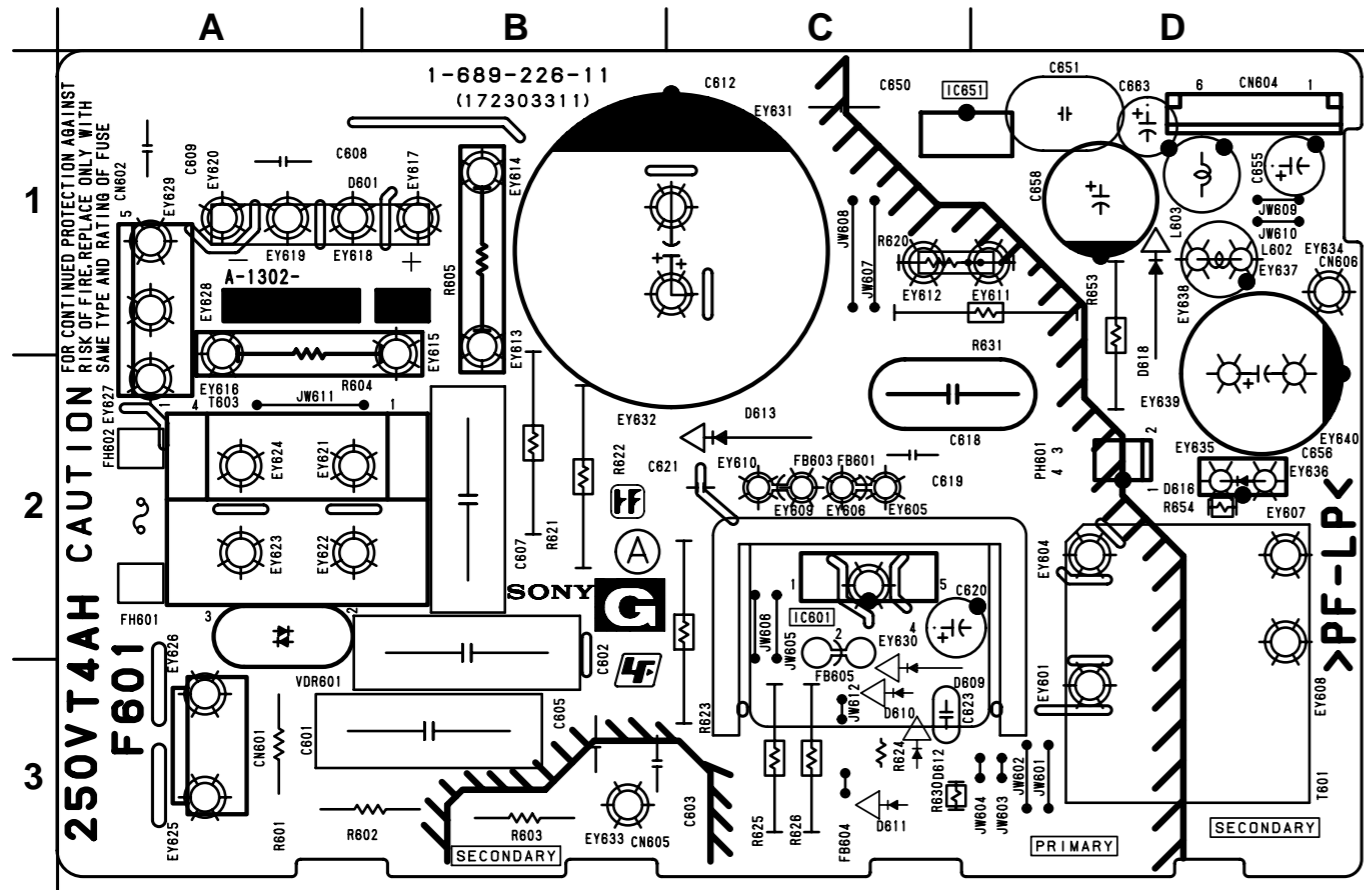
C -A SIDE-  
SUFFIX: -11



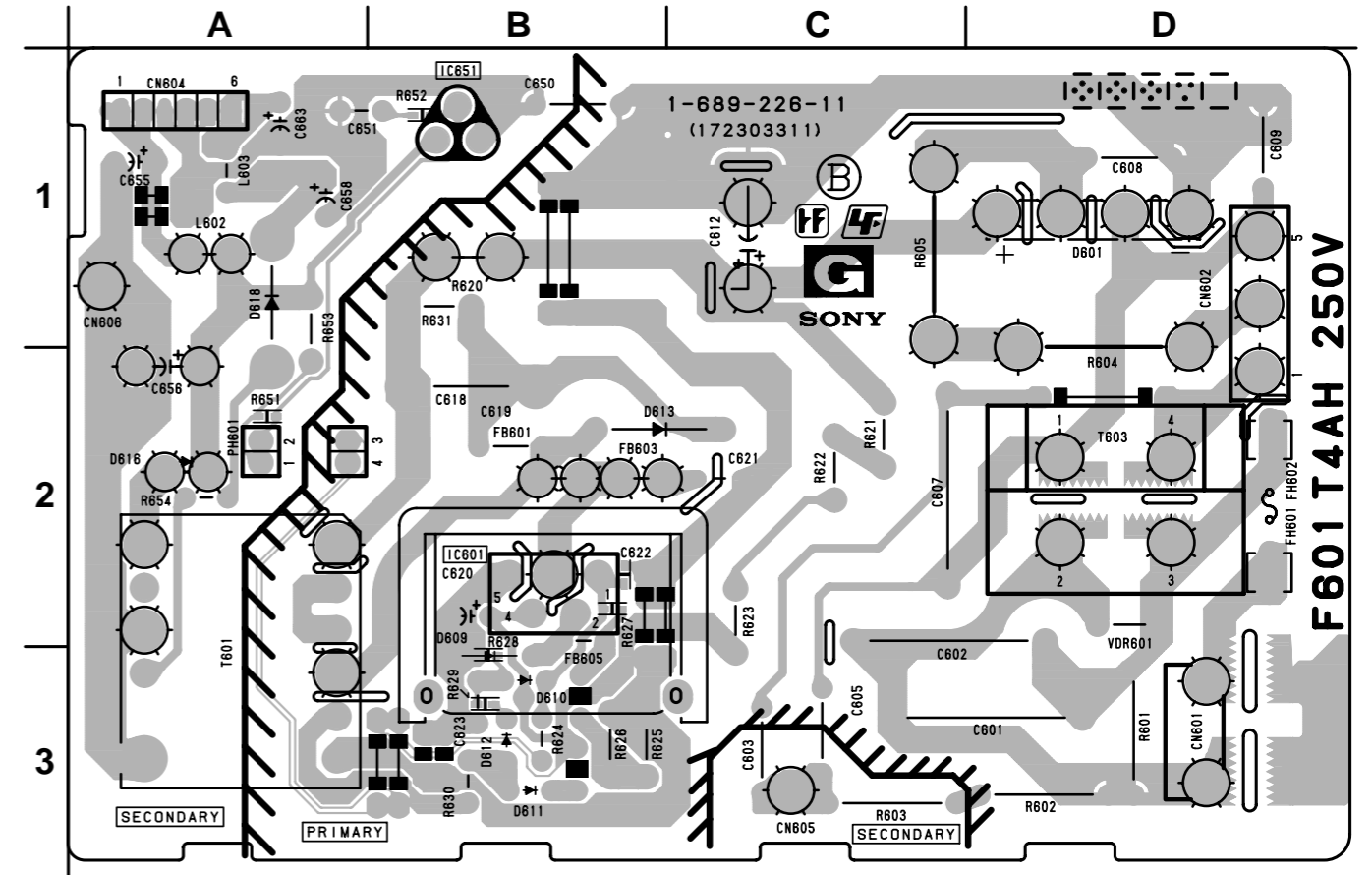
C -B SIDE-  
SUFFIX: -11







G -A SIDE-  
SUFFIX: -11



G -B SIDE-  
SUFFIX: -11

G BOARD

- \*:B SIDE
- D601 A-1
  - D609 C-3
  - D610 C-3
  - D611 C-3
  - D612 C-3
  - D613 C-2
  - D616 D-2
  - D618 D-2
  - IC601 C-2
  - IC651 C-1



## SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer :

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

### LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA. Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

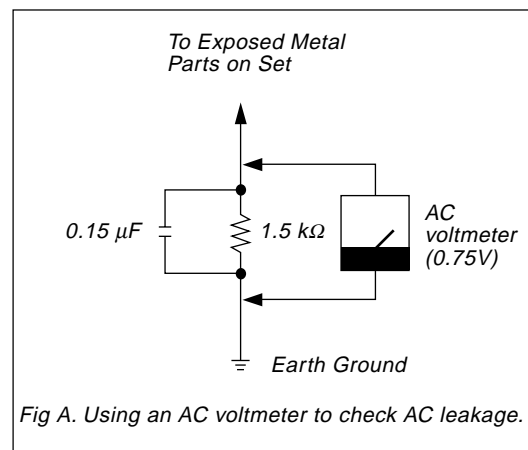


Fig A. Using an AC voltmeter to check AC leakage.

